Home Phoneline - Ethernet Converter

networks@work

USER'S MANUAL

COMPEX NETPASSAGE SERIES

TH102-A

Manual number : U-0323-V1.3C

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About this Document

This document is the User's Manual for the Compex NetPassage series, TH102-A, Home Phoneline – Ethernet Converter. It contains information about the hardware & software setup procedure and technical support.

Your Feedback

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This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Connect the computer into an outlet on a circuit different from that to which the receiver is connected.
- Increase the separation between the computer and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

FCC Compliance Statement: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

Declaration of Conformity

Compex, Inc. declares the following:
Product Name: TH102-A Compex NetPassage Series, Home Phoneline – Ethernet Converter
Model No.: TH102-A **conforms to the following Product Standards:**
Radiated Emission Standards: EN55022A, FCC Part 15 Class B; Conducted Emission Standards: EN60555Pt2 conducted emission; EN55022A conducted emission, FCC Part 15 Class B; Immunity Standards: IEC 801-2; IEC 801-3; IEC 801-4;
Therefore, this product is in conformity with the following regional standards:
FCC Class B - following the provisions of FCC Part 15 directive;
CE Mark - following the provisions of the EC directive.

15th Jan, 2002

Shi Jia Xiang
R & D Manager

Technical Support Information

The warranty information and registration form are found in the Quick Install Guide.

For technical support, you may contact COMPEX or its subsidiaries. For your convenience, you may also seek technical assistance from the local distributor, or from the authorized dealer/reseller that you have purchased this product from. For technical support by email, write to support@compex.com.sg.

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</table>

About This Document

The product described in this document, Compex NetPassage Series, TH102-A is a licensed product of Compex Systems Pte Ltd. This document contains instructions for installing, configuring and using the TH102-A. It also gives an overview of the key applications and the networking concepts with respect to the product.

This documentation is for both Network Administrators and the end user who possesses some basic knowledge and expertise in the networking structure and protocols.

It makes a few assumptions that the host computer has already been installed with TCP/IP and already up & running and accessing the Internet. Procedures for Windows 95/98/2000/XP operating systems are included in this document. However, for other operating system, you may need to refer to your operating system's documentation for networking.

How to Use this Document

The document is written in such a way that you as a user will find it convenient to find specific information pertaining to the product. It comprises of chapters that explain in details on the installation and configuration of TH102-A.

Conventions

In this document, special conventions are used to help and present the information clearly. The Compex NetPassage TH102-A is often referred to as TH102-A in this document. Below is a list of conventions used throughout.

NOTE
This section will consist of important features or instructions

---

CAUTION
This section concerns risk of injury, system damage or loss of data

---

WARNING
This section concerns risk of severe injury

Menu Commands, Button/Dialog Buttons as well as Product Indicators will appear bold as shown below:

Eg. **Reboot** System and **Save**
Eg. **WAN** port or **STATUS LED** indicator.

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Chapter 1 Product Overview

1.1 Package Content

Thank you for purchasing the Compex NetPassage TH102-A. It is a 10Mbps HPNA-to-Ethernet Converter with Bridging and Routing capabilities to connect your Home Phone line and Ethernet networks.

You will find the following items in the package:
1 x Compex TH102-A unit
1 x Power Supply Adapter (5V/2.1A)
1 x Quick Install Guide and Warranty Card
1 x CD-ROM

1.2 Introduction

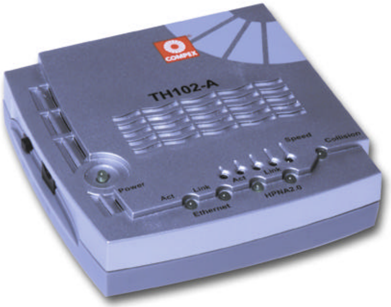


Figure 1.2 TH102-A

Compex NetPassage TH102-A is a Home Phoneline – Ethernet Converter with two operating modes, Bridge Mode that enables Ethernet to Home Phoneline bridging and Router Mode that allows Broadband Internet sharing with multiple PCs connected on the same Home Phoneline Network. You may select the desired operating mode based on your application need. The factory default of TH102-A's operating mode is Bridge Mode.

Compex TH102-A is designed with two network interfaces, an RJ11 Home Phoneline interface and a RJ45 10Base-T Ethernet interface. In compliance with HPNA 2.0 (Home Phoneline Network Alliance standard 2.0), Compex NetPassage TH102-A provides more than 10Mbps network connectivity for the RJ11 Home Phoneline Network. It is also backward compatible with the older standard of 1Mbps.

1.3 Features and Benefits

1.3.1 Ethernet to Home Phoneline Bridging (Bridge Mode)

By default, Compex NetPassage TH102-A is configured as an Ethernet to Home Phoneline Bridge. You may connect the RJ45 10Base-T Ethernet interface of TH102-A to an Ethernet device or to an entire Ethernet network for resource sharing.

1.3.2 Broadband Internet Sharing (Router Mode)

While operating in Router Mode, the RJ45 10Base-T Ethernet port of TH102-A may be connected to an external Cable/ADSL modem, sharing a single broadband Internet account with multiple PCs connected on the Home Phoneline Network. Compex NetPassage TH102-A has been designed with the following Router functions:

- ***Parallel Broadband***
  Designed with the unique Parallel Broadband, multiple units of TH102-A may be installed in the Home Phoneline Network with multiple Broadband channels, providing Load Balancing and Fail-Over Redundancy to the Internet

- ***Built-in DHCP Server***
  With the built-in DHCP server, you may configure your Home Phoneline PCs to dynamically obtain IP addresses from TH102-A, making the configuration of IP addressing a fast and easy process.

- ***Time-based Access Control***
  Compex TH102-A is designed with Time-based Access Control. You may define Internet access restrictions to certain Home Phoneline PCs based on time.

- ***IP Packet Filtering***
  With IP Packet Filtering, you may restrict certain Home Phoneline PCs running undesired Internet applications based on the TCP port used by the applications. For example, you may stop the TELNET session to the Internet by defining a function to filter off TCP Port 23 commonly used by TELNET applications.

- ***Network Address Translator (NAT)***
  Compex NetPassage TH102-A is also designed with Network Address Translator (NAT), providing a simple firewall protection against intruders.

- ***Virtual Server***
  Compex NetPassage TH102-A supports implementation of Virtual Server, allowing hosting of Internet servers in your Home Phoneline Network. Two types of Virtual Server may be defined on TH102-A, Port Forwarding and IP Forwarding.

- ***Profile Backup***
  Your configuration on Compex NetPassage TH102-A may be saved onto the hard disk for backup purpose. The profile may be restored easily back on TH102-A.

- ***Embedded HTTP Server***
  Compex NetPassage TH102-A is integrated with an embedded HTTP Server facilitating the configuration process with a user-friendly web-based configuration interface. With just a web browser, you may easily connect to TH102-A and complete the configuration process.

1.3.3 Firmware Upgrade

Compex NetPassage TH102-A may be updated with firmware released in the future to support even more features.

1.4 Panel Views and Descriptions

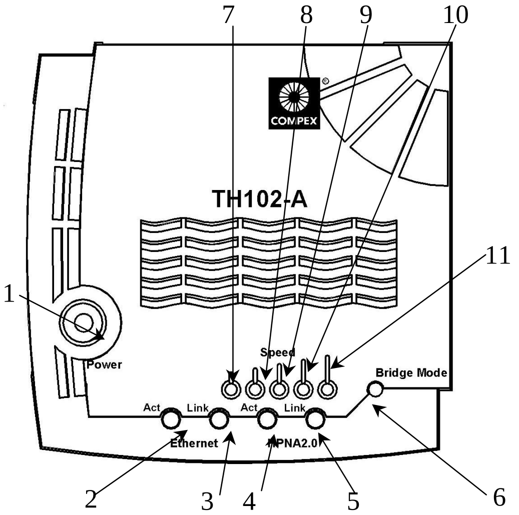


Figure 1.4a TH102-A Top View

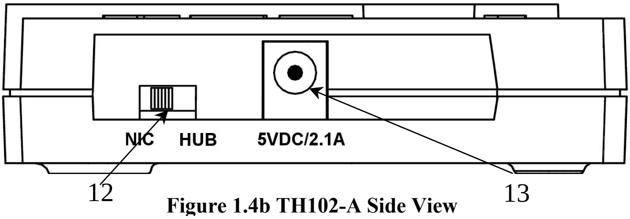


Figure 1.4b TH102-A Side View

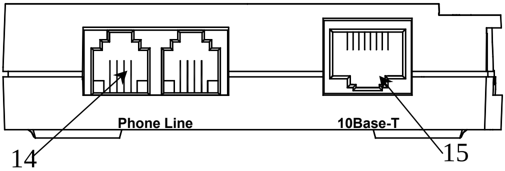


Figure 1.4c TH102-A Front View

1.5 TH102-A Indicators

1	“Power” LED	• Steady Green light indicates that the power has been turned on
2	Ethernet “Act” LED	• Blinks when data is being transmitted through the RJ45 10Base-T Ethernet port
3	Ethernet “Link” LED	• Steady Green light indicates that an Ethernet device is connected to the RJ45 10Base-T Ethernet port
4	HPNA2.0 “Act” LED	• Blinks when data transmission is present on the RJ11 HPNA interface
5	HPNA2.0 “Link” LED	• Steady Green light indicates that the TH102-A has established a link with a Home Phoneline Network
6	“Bridge Mode” LED	• Steady Green light indicates that the TH102-A is operating in *Bridge Mode*
7	1st “Speed” LED (from left)	• Blinks when data is being transmitted at 1Mbps (HPNA 1.0) on the RJ11 HPNA interface • Flashes rapidly when the firmware of TH102-A is corrupted
8	2nd “Speed” LED (from left)	• Blinks when data is being transmitted at 4Mbps (HPNA 2.0) on the RJ11 HPNA interface
9	3rd “Speed” LED (from left)	• Blinks with 2nd “Speed” LED when data is being transmitted at 8Mbps (HPNA 2.0) on the RJ11 HPNA interface
10	4th “Speed” LED (from left)	• Blinks with 2nd & 3rd “Speed” LED when data is being transmitted at 12Mbps (HPNA 2.0) on the RJ11 HPNA interface
11	5th “Speed” LED (from left)	• Blinks with 2nd, 3rd, & 4th “Speed” LED when data is being transmitted at 16Mbps (HPNA 2.0) on the RJ11 HPNA interface

12	Uplink Switch	**NIC :** • Push the switch to this position if the RJ45 10Base-T Ethernet port is to be connected to an Ethernet network adapter **HUB :** • Push the switch to this position if the RJ45 10Base-T Ethernet port is to be connected to an Ethernet Hub or Switch
13	5VDC/2.1A	• Power connector for DC input power of $5V_{DC}$, 2.1A
14	Phone Line	• RJ11 HPNA Dual-Port
15	10Base-T	• RJ45 10Mbps Ethernet port

1.6 Technical Specifications

♦	**Industry Standards**	Complies with ▪ IEEE 802.3 10Base-T ▪ HPNA 2.0, backward compatible with HPNA 1.0 ▪ FCC Class B ▪ CE Mark ▪ Gost ▪ C-Tick ▪ UL
♦	**Operating Mode**	▪ Bridge Mode (Default) ▪ Router Mode
♦	**Interface**	▪ One RJ45 10Base-T Ethernet port ▪ One RJ11 HPNA dual-port
♦	**LED Indicators**	▪ System Power ▪ Ethernet Link ▪ Ethernet Activity ▪ HPNA Link ▪ HPNA Activity ▪ HPNA Speed
♦	**Data Rate**	▪ RJ45 Ethernet: 10Mbps (Nominal) ▪ RJ11 HPNA: 1-16Mbps (Adaptive)
♦	**Link Distance**	▪ 10Base-T: Up to 100 meters of Category 3 UTP Cable ▪ Home Phoneline: Up to 1000 feet (node to node) of RJ11 telephone wire

♦	**Router Functions**	
	WAN Protocol	Static IP, Dynamic IP, PPP Over Ethernet (PPPoE), RAS
	Load Balancing	Via Parallel Broadband
	Fail-Over Redundancy	Via Parallel Broadband
	NAT Firewall	Yes
	Built-In DHCP Server	Yes
	Supported IP Subnet	All Classless/Classful Subnets
	IP Routing	Dynamic & Static
	Routing Protocol	RIP1, RIP2
	Time-based Access Control	Yes
	IP Packet Filtering	Yes
	Virtual Server	Port Forwarding, IP Forwarding
	VPN Client	PPTP & IPSec (Pass-Through)
♦	**Power Supply**	2.1A at $5V_{DC}$ power adapter
♦	**Environmental Requirement**	
	Temperature	Operating: 0°C to 40°C Storage: -20°C to 70°C
	Humidity	Operating: 10%RH to 80%RH Storage: 5%RH to 90%RH
♦	**Dimensions**	88mm x 89mm x 23mm (LxWxH)
♦	**Weight**	About 0.5Kg (Including Power Adapter)

1.7 Attaching Clip Holder onto TH102-A

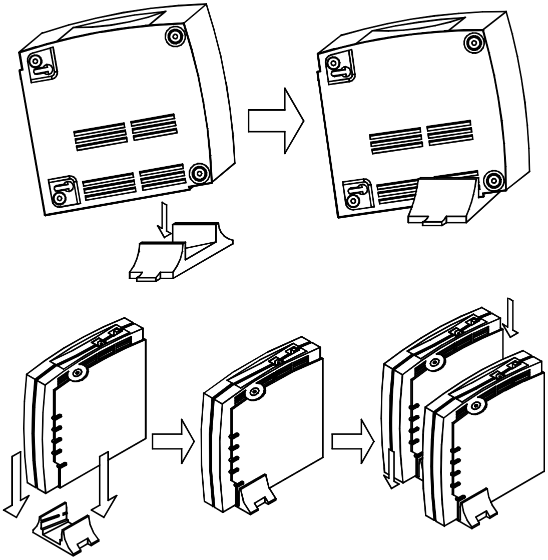


Figure 1.7 Attaching Clip Holder Onto TH102-A

NOTE

Due to heat generation when operating the TH102-A, you are advised to place the device in an upright position using the clip holder for proper ventilation.

---

1. Snap the TH102-A onto the clip holder, as shown in Figure 1.7.

2. If you have multiple units of TH102-A, you may position them side-by-side in an array by slotting the clip holder to one another, as shown in Figure 1.7.

1.8 TH102-A Implementation

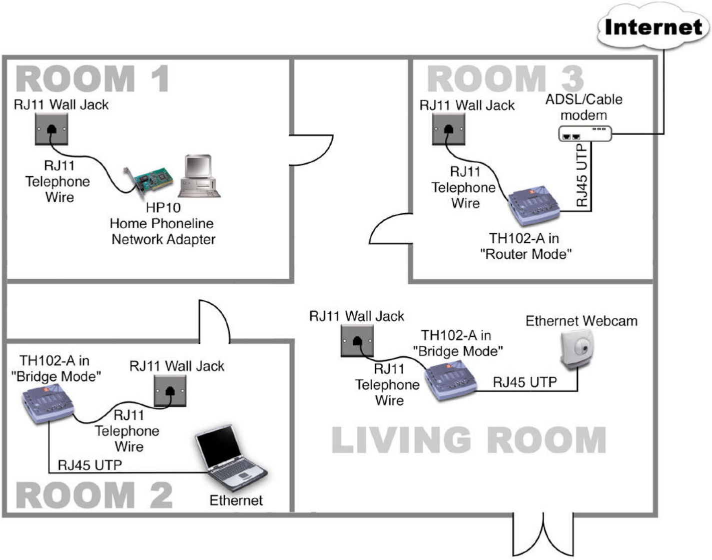


Figure 1.8 TH102-A Implementation

Chapter 2 Getting Started

Compex TH102-A comes with an embedded HTTP server that enables users to configure it via a Web Browser Configuration for use on multiple platforms. For the ease of configuration TH102-A, Compex has used a simple **Web based Configuration Interface**.

Before using the Web based Configuration Interface, please have the necessary equipment ready.

1. Computer with HPNA Adapter or Ethernet Adapter
2. TH102-A

To get started, you can either connect one end of the telephone wire to the HPNA adapter of your Computer and the other end to the telephone port of TH102-A (Labeled #14 on Figure 1.4c, Page 4). Alternatively, you can connect one end of the RJ45 cable is connected to the Ethernet Adapter and the other end is connected to the WAN port of TH102-A (Labeled #15 on Figure 1.4c, Page 4).

NOTE

Please ensure that the telephone wire from the HPNA adapter is connected to the RJ11 port of the TH102-A.

By default, Compex NetPassage TH102-A is configured with Bridge Mode. You may connect to the web-based configuration interface of TH102-A with a JAVA-enabled web browser to set the operating mode to Router Mode.

2.1 Configuration Requirements

If you are configuring the TH102-A from its RJ11 Home Phoneline (HPNA) interface, please use the IP address of 10.0.0.1. You must also ensure that the IP address of your managing PC is configured with an IP address of 10.0.0.X and a subnet mask of 255.255.255.0, where X is a number between 2 to 253.

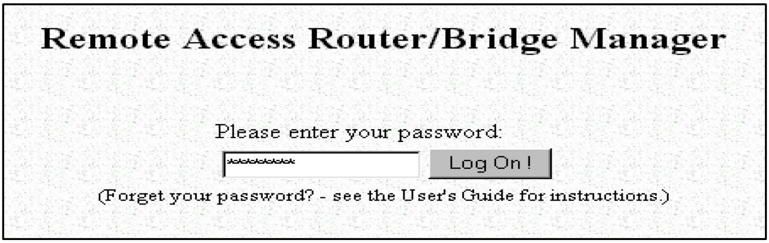
If you are configuring the TH102-A from its RJ45 10Base-T Ethernet interface, please use the IP address of 192.168.168.1. You must also ensure that the IP address of your managing PC is configured with an IP address of 192.168.168.X and a subnet mask of 255.255.255.0, where X is a number between 2 to 253.

Please refer to Chapter 6, “TCP/IP Configuration” if you have difficulty in setting your IP address.

2.2 Accessing the Web-based Configuration Interface

Therefore to access the configuration interface, please activate your preferred Java enabled Internet browser and enter the default IP address of the TH102-A. The default address of TH102-A is http://192.168.168.1. Immediately, you will be greeted by our user friendly Web based Configuration Interface.

The first page is the password authentication page as shown in Figure 2.0a. Password is required for configuration so as to maintain a level of security such that your configuration cannot be easily tampered. The default password is **password** (case-sensitive) and this can be changed after your have login. Please refer to Chapter 5 on “Navigating in the Web-based Configuration Interface ” if you need to change the default password.



Remote Access Router/Bridge Manager

Please enter your password:

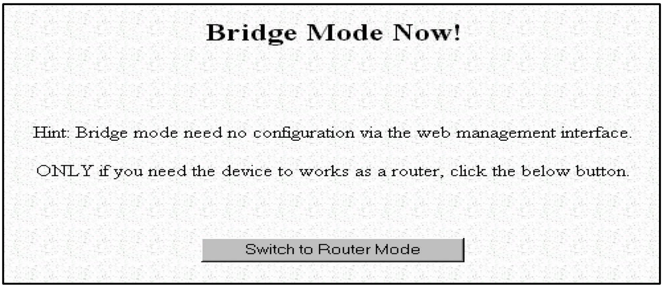
****

(Forget your password? - see the User's Guide for instructions.)

Figure 2.0a Password Authentication

NOTE In the event that you have forgotten your password, please refer to Chapter 7 on “Hardware Reset”.

Upon logging in, you will be prompt to select between a Bridge or Router mode. For first time logon, the default setting was set to bridge mode. If you want to use TH102-A in its Bridge mode, please refer to Chapter 3 on “Hardware Setup for Bridging between Ethernet and Home Phoneline Network”. Alternatively, please refer to Chapter 4 on “Configuring TH102-A in Router Mode”.



Bridge Mode Now!

Hint: Bridge mode need no configuration via the web management interface.

ONLY if you need the device to works as a router, click the below button.

Figure 2.0b Selection between Bridge or Router Mode

If your selection is to use TH102-A in Bridge mode, no modification is required.

If the selection is to use TH102-A in Router mode, upon clicking the Switch to Router Mode, TH102-A will then reboot for the changes made to be effective. After reboot, the TH102-A will be operating in Router Mode.

In a nutshell, this is the introduction to the Web based Configuration Interface of Compex's TH102-A. This is also the web page for switching between Bridge or Router mode. Upon entering the Configuration Interface for TH102-A, these are the first 2 pages that you would encounter.

The next few chapters will discuss about configuring TH102-A to work as a Bridge or as a Router.

Chapter 3 Hardware Setup for Bridging between Ethernet and Home Phoneline Network

3.1 Using TH102-A in Bridge Mode

By default, Compex NetPassage TH102-A is configured with **Bridge** mode. You may use TH102-A to bridge your Home Phoneline Network to an entire Ethernet network. Figure 3.1 illustrates a unit of TH102-A configured as a **Bridge**. Using TH102-A in **Bridge** mode is to transfer the data traffic between the traditional Ethernet sequence and HPNA network segment.

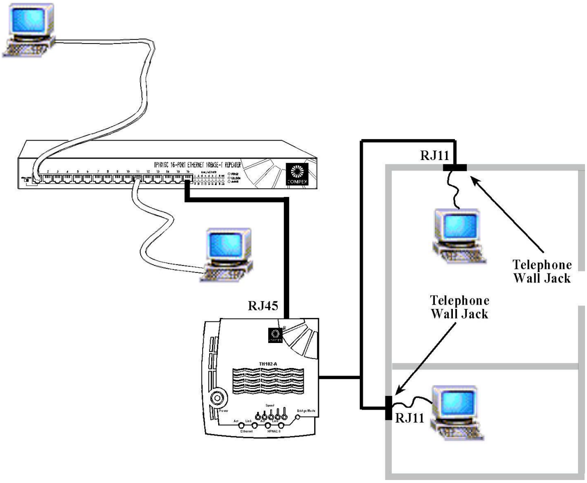


Figure 3.1 TH102-A Functioning as a Bridge

3.2 Connection Procedures

The procedures for setting NetPassage TH102-A as a **Bridge** are rather simple.

1. Connect the RJ45 10Base-T Ethernet port of TH102-A to an Ethernet Hub or Switch using a straight-through UTP cable (not provided in the package content).

2. Push the Uplink switch on TH102-A to the position labeled **HUB**.

3. Connect RJ11 HPNA port of TH102-A to RJ11 telephone wall jack using a telephone wire, which is provided in the packaging content.

4. Carefully plug the power adapter to the DC output of TH102-A and turn the supply on.

This ends the setting up of TH102-A to be used in the **Bridge** mode.

NOTE

If TH102-A has been set to Router mode by the previous user, please refer to Chapter 2 “Getting Started” to change the device to the Bridge mode.

3.3 Summary

You have completed TH102-A hardware setup for Ethernet to Home Phoneline Bridging. The **Bridge** mode does not require further configuration. However, if TH102-A is not in the default **Bridge** mode, you need to set TH102-A to **Bridge** mode.

Chapter 4 Configuring TH102-A in Router Mode

4.1 Connection Procedures

The procedures for setting NetPassage TH102-A as a **Router** are rather simple.

1. Connect the RJ45 Base-T Ethernet port of TH102-A to an Ethernet Hub or Switch using a straight through UTP cable.

2. Connect the RJ45 Base-T Ethernet port of TH102-A to an Ethernet Hub or Switch using a straight through UTP cable.

3. Push the Uplink switch on TH102-A to the position labeled **HUB**.

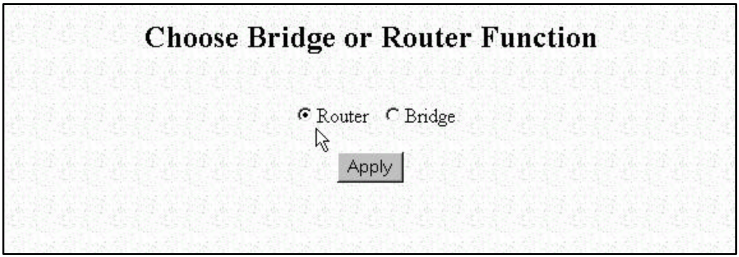
4. Connect the RJ11 HPNA port (Labeled #14 on Figure 1.4c, Page 4) of TH102-A to the RJ11 telephone wall jack using a telephone wire.

5. Carefully plug the power adapter into the wall jack and connect the DC output to TH102-A. Turn on the power supply.

NOTE

If you do not have a Hub or Switch, please proceed to Step 5 of the connection procedures**.**

Since TH102-A was originally set to Bridge mode as default, it is necessary to change the device to work in the Router mode. You should have already log onto the Web-based Configuration Interface (refer to Chapter 2, “Getting Started”) and had made the selection as shown on Figure 4.1.



Choose Bridge or Router Function

● Router ○ Bridge

Figure 4.1 Selection between Router or Bridge Mode

4.2 Using Web based Interface for Router Configuration

TH102-A comes with a user-friendly web based browser interface where all the router's configuration can be done easily. The configuration menu is listed on the left of the graphic user interface (GUI) and they are categorized broadly under " CONFIGURATION", "SYSTEM TOOLS" and "HELP". The next few sections will describe the functionality of the various subheadings under each category.

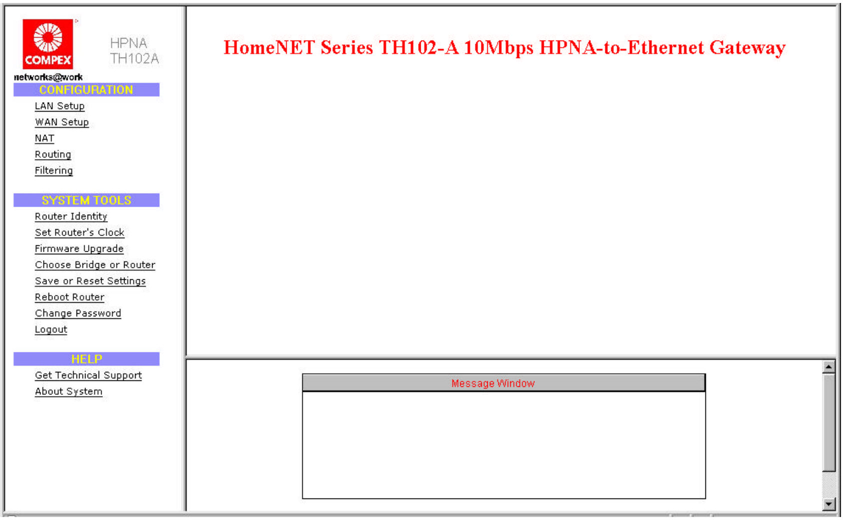


Figure 4.2 Web-based Configuration Interface

Chapter 5 Navigating in the Web-based Configuration Interface

5.1 CONFIGURATION Menu

As the name implied, the CONFIGURATION Menu allows the setting of the various types of network environment. The menu is further classified to:

- LAN Setup
- WAN Setup
- NAT
- Routing
- Filtering

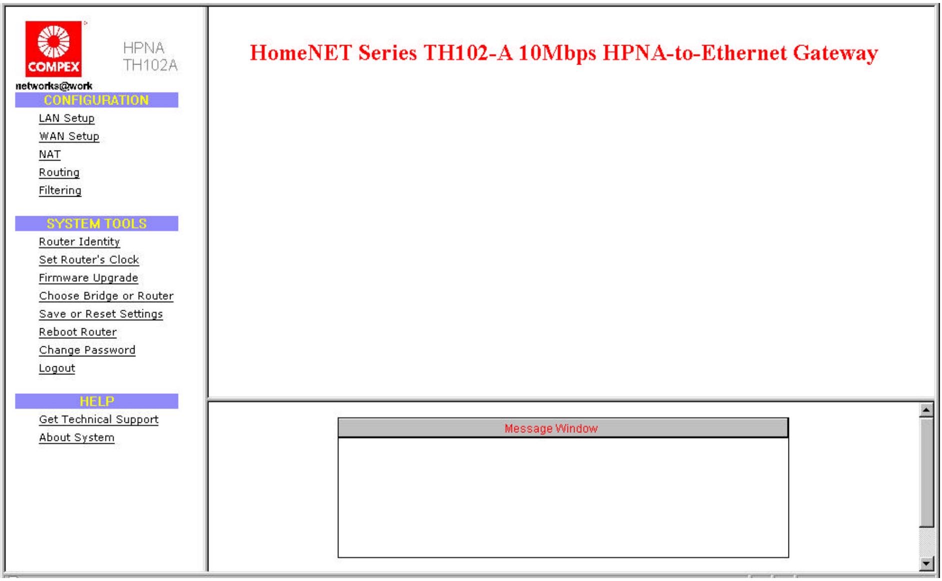


Figure 5.1 Web-based Configuration Interface

The separation into various subheadings is to ease the configuration process. The next few sections will describe the setting of each subheading in more details.

5.1.1 LAN Setup

A Local Area Network (LAN) supplies networking capability to a group of computers in close proximity to each other such as in an office building, a school, or a home. Most LANs are built with relatively inexpensive hardware such as Ethernet cable and network interface cards. A LAN environment has the ability to share common resources such as printers and files or even access to the Internet.

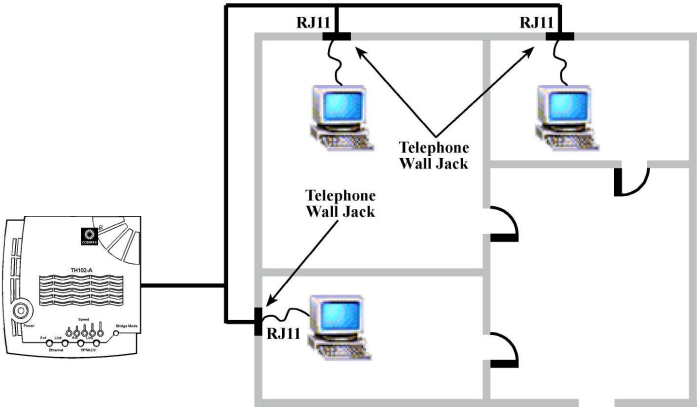


Figure 5.1.1a TH102-A Function in Router mode

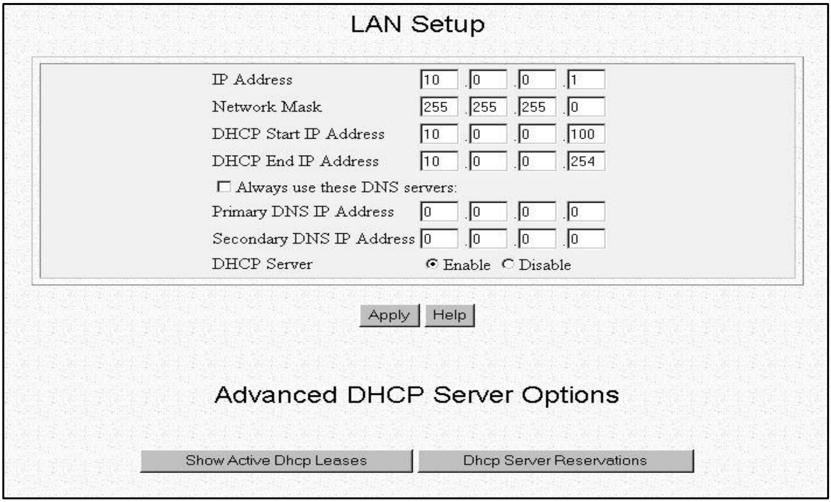
If this is the configuration for your network, please proceed with the configuration of the LAN network using the Web based Configuration Interface.

NOTE

Please check with the Network administrator (if possible) with issue pertaining to configuring your LAN.

Please be reminded to select **Reboot Router** upon completion of your configuration, so that the new settings will be updated.

Since all the telephone wall jacks in the apartment are connected to the same telephone line, this would serve as a network configuration. Assuming that the wall jack determines each node of the network, you can configure them to function like a LAN.



LAN Setup

IP Address 10 . 0 . 0 . 1
Network Mask 255 . 255 . 255 . 0
DHCP Start IP Address 10 . 0 . 0 . 100
DHCP End IP Address 10 . 0 . 0 . 254
☐ Always use these DNS servers:
Primary DNS IP Address 0 . 0 . 0 . 0
Secondary DNS IP Address 0 . 0 . 0 . 0
DHCP Server ● Enable ○ Disable

Advanced DHCP Server Options

Figure 5.1.1b LAN Setup Page

Firstly, configure the IP address of the TH102-A which it is be identified in the network. If you are using a DHCP server, please enter the Start and End address. Please enter the DNS IP address as well.

Secondly, configure the PCs in the network so that they share the same LAN environment. If you have difficulty in configuring the IP address of the PCs, please refer to Chapter 6 on "TCP/IP Configuration". Please ensure that you type in the correct Network Address for each individual PCs, else they will not be able to function in a LAN environment. If you are using a DHCP server, please read the section on Advanced DHCP server Options.

Upon successful configuration, data will be routed through TH102-A. Thus TH102-A served its purpose as a router. If one of the computers is configured to link to the Internet, the rest of the computer can share this resource to surf the web. This is one of the advantages of having a LAN environment, as the resources can be shared within the network environment.

NOTE

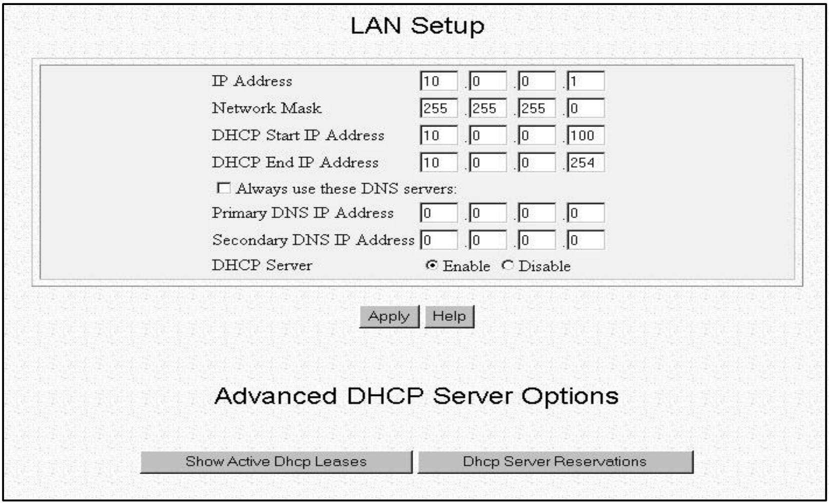
The HPNA ready computers in the network must be configured such that they will be able to see the TH102-A (which is being used as a router). Please refer to Chapter 6 on "TCP/IP Configuration".

The default setting for the LAN Setup page is

IP address: **10.0.0.1**
Network Mask: **255.255.255.0**
DHCP Start IP Address: **10.0.0.100**
DHCP End IP Address: **10.0.0.254**
Primary DNS IP Address: **0.0.0.0**
Secondary DNS IP Address: **0.0.0.0**

5.1.1.1 Advanced DHCP Server Options

If you have a DHCP server, you can configure it by using the Advanced DHCP Server Options. Firstly, you can see the list of IP that are used by clicking on **Show Active Dhcp Leases.** Secondly, you can reserve the IP address for certain machine using their Hardware address or their Host Name by selecting **Dhcp Server Reservations.**



LAN Setup

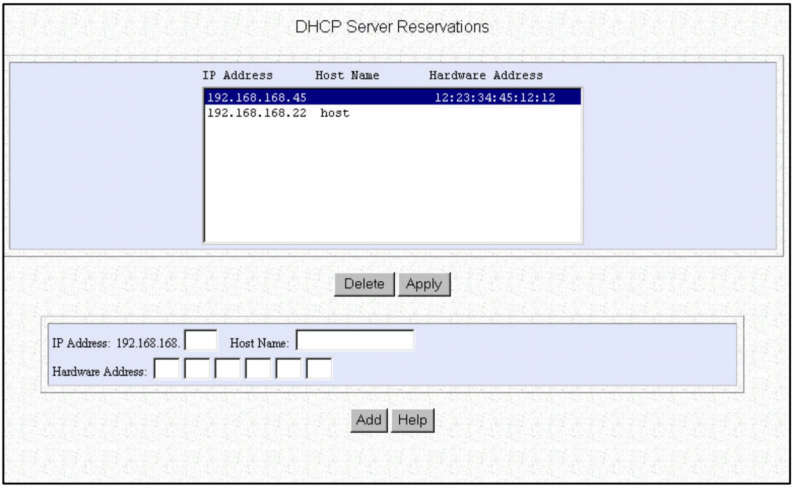
IP Address 10 . 0 . 0 . 1
Network Mask 255 . 255 . 255 . 0
DHCP Start IP Address 10 . 0 . 0 . 100
DHCP End IP Address 10 . 0 . 0 . 254
☐ Always use these DNS servers:
Primary DNS IP Address 0 . 0 . 0 . 0
Secondary DNS IP Address 0 . 0 . 0 . 0
DHCP Server ● Enable ○ Disable

Advanced DHCP Server Options

Figure 5.1.1.1a LAN setup configuration page

NOTE

Dynamic Host Configuration Protocol (DHCP), a protocol for assigning dynamic IO addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network. Dynamic addressing simplifies network administration because the software keeps track of IP addresses rather than requiring an administrator to manage the task. This means that a new computer can be added to a network without the hassle of manually assigning it a unique IP address.



```
192.168.168.45                12:23:34:45:12:12
192.168.168.22  host
```

IP Address: 192.168.168.
Host Name:
Hardware Address:

Figure 5.1.1.1b DHCP configuration page

Upon selection of the **Dhcp Reservation Page** you would see a page similar to the one shown in Figure 5.1.1.1b. Please enter the **IP address** that you would like to reserve, the **Host Name** or the **Hardware Address** and then click on **Add**. Your new entry would be updated on the list as shown above. After the modifications, please select **Apply** so that the changes will be saved and updated.

NOTE

Hardware address takes precedence over the Host name. The DHCP server will ignore the Host Name if it finds a match in the Hardware Address.

5.1.2 WAN Setup

A Wide Area Network (WAN) spans a large geographic area, such as a state, province or country. WANs often connect multiple smaller networks, such as LANs.

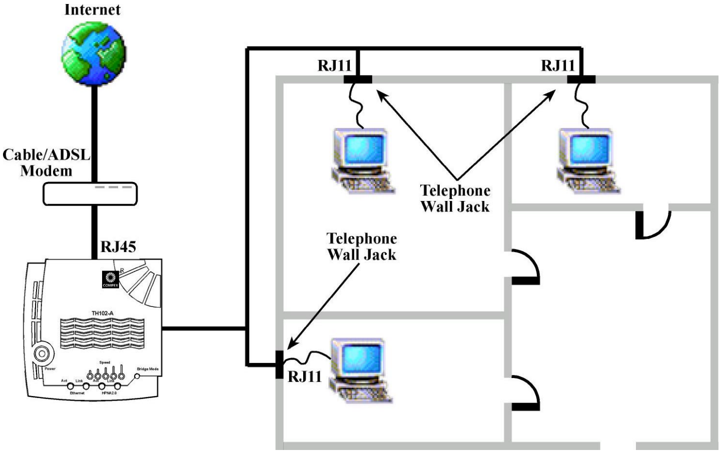
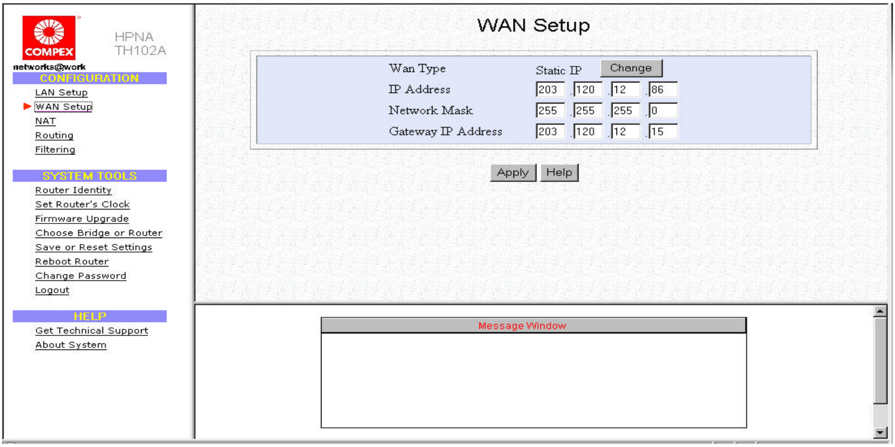


Figure 5.1.2a WAN Configuration

If this is the type of configuration that you require, please select the WAN configuration from the Web based Configuration Interface. Upon selection of this option, you browser page will change to one that is similar to the one shown on Figure 5.1.2a. There are 5 choices of WAN network available and they are namely,

- Static IP Address
- Dynamic IP Address
- PPP over Ethernet
- Singapore ADSL (Ethernet 512k)
- Australia BPA Cable

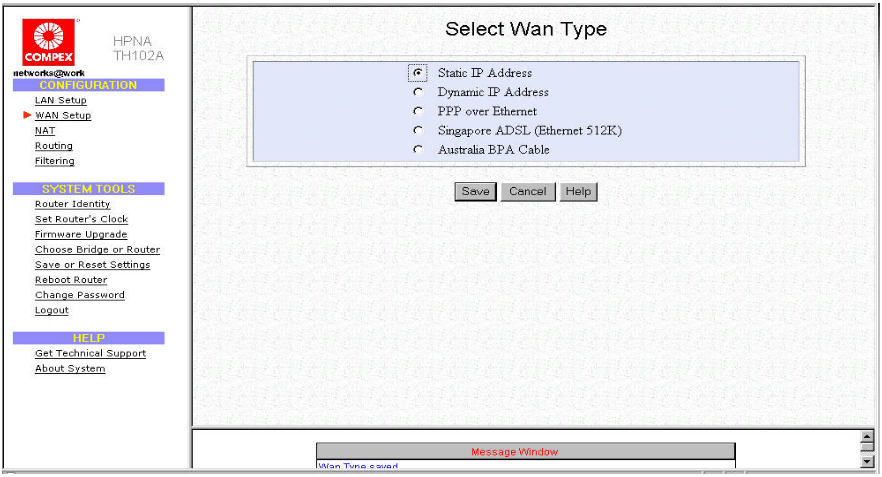


WAN Setup

Wan Type: Static IP
IP Address: 203 . 120 . 12 . 86
Network Mask: 255 . 255 . 255 . 0
Gateway IP Address: 203 . 120 . 12 . 15

Figure 5.1.2b WAN Setup page

Click on **Change** button and you will be directed to the page show on Figure 5.1.2c where you can make the WAN type selection. Click **Save** after you have made the selection and it will bring you to the respective configuration page.



Select Wan Type

● Static IP Address
○ Dynamic IP Address
○ PPP over Ethernet
○ Singapore ADSL (Ethernet 512K)
○ Australia BPA Cable

Wan Type saved

5.1.2c WAN Type Selection Page

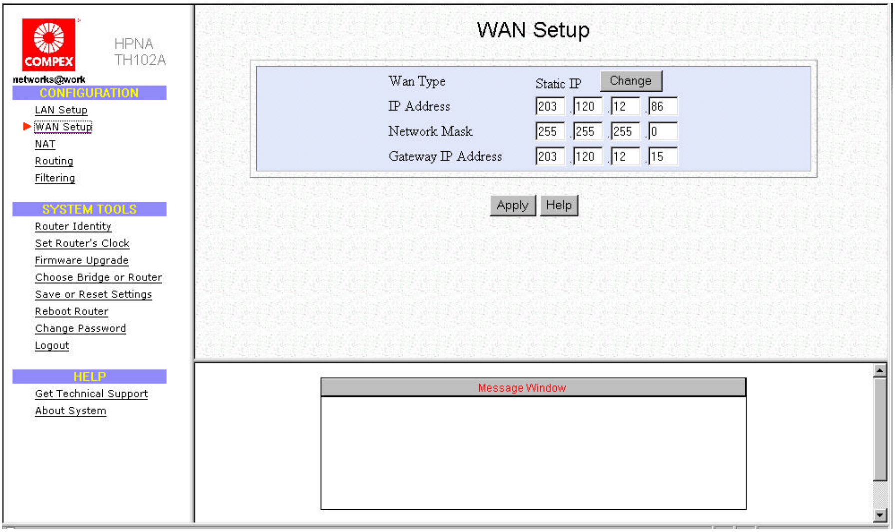
The configuration of these types of WAN will be discussed in the next section.

NOTE

In general, PPP over Ethernet, Singapore ADSL and Australia BPA Cable are quite similar to Dynamic IP address. The only difference is that they require a different form of authentication upon logging in.

5.1.2.1 Sharing Cable Internet (Static IP)

Static IP address network is one type of network where all the computers in the network is assigned a permanent address on the Network. There is no dynamic assignment of IP address for this type of network, thus making this a rigid/controlled network.



WAN Setup

Wan Type: Static IP
IP Address: 203 . 120 . 12 . 86
Network Mask: 255 . 255 . 255 . 0
Gateway IP Address: 203 . 120 . 12 . 15

Figure 5.1.2.1 Static IP configuration Page

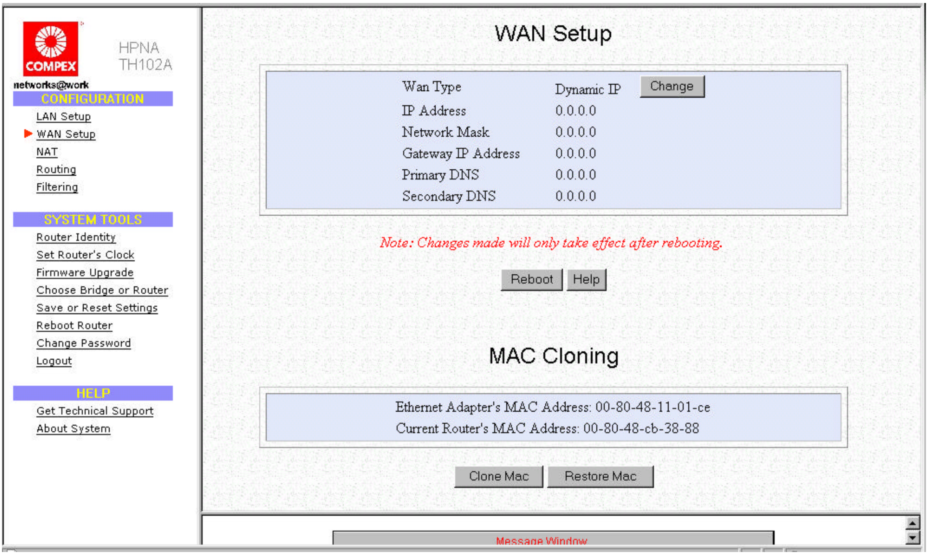
Please enter the data into the following fields:

- IP Address
- Network Mask
- Gateway IP Address

Please click on **Apply** after you have completed filling in the data so that the changes will be reflected in the respective fields. Please remember to select **Reboot Router** later so that all the changes that were made can be updated.

5.1.2.2 Sharing Cable Internet (Dynamic IP)

As the name implied, Dynamic IP address network is where the IP address is assigned dynamically by the Internet Service Provider (ISP). Thus for the parameters in the setup page to be dynamically assigned, the identity of the Router has to be known. Usually, ISP will use the identity of the Router as a form of authentication. Please refer to Section 5.2.1, “Router Identity” on page 44 for more information.



WAN Setup

Wan Type	Dynamic IP
IP Address	0.0.0.0
Network Mask	0.0.0.0
Gateway IP Address	0.0.0.0
Primary DNS	0.0.0.0
Secondary DNS	0.0.0.0

Note: Changes made will only take effect after rebooting.

MAC Cloning

Ethernet Adapter's MAC Address: 00-80-48-11-01-ce
Current Router's MAC Address: 00-80-48-cb-38-88

Figure 5.1.2.2 Dynamic IP configuration page

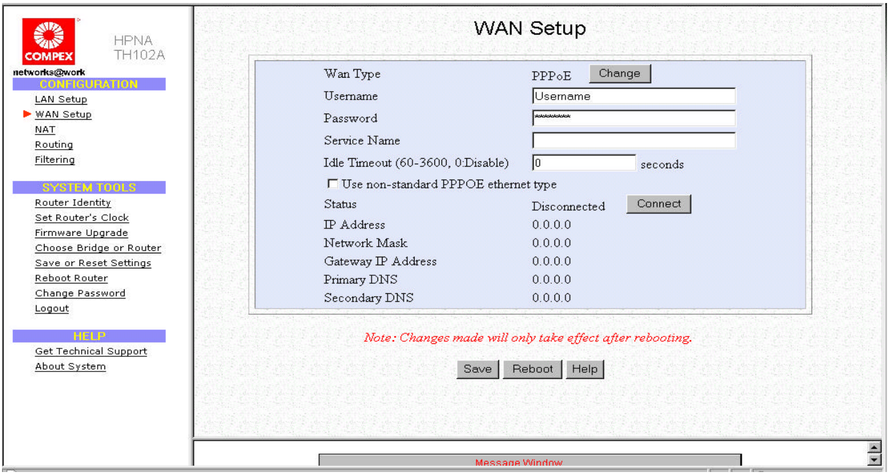
5.1.2.2.1 MAC Cloning

MAC Cloning is for users who use the Ethernet adapter to do the TH102-A configuration. Certain ISPs log the MAC address of the first device connected to the broadband channel, and refuse to release an IP address unless the MAC address matches the one in the log. If this is not a new Cable Internet subscription and that the ISP refuses to release an IP address, you may clone the “ approved” MAC address such that the Ethernet adapter (that used to connect to the Internet) MAC address will be replicated onto TH102-A.

NOTE Users having cable connection (which is a WAN network) for Internet access does not require any further configuration as the TH102-A is pre-configured with WAN connection using Dynamic IP.

5.1.2.3 Sharing ADSL Internet (Standard PPPoE)

Point-to-Point Protocol over Ethernet (PPPoE) is a specification for connecting multiple computer users on an Ethernet local area network to a remote site through common communication device (such as modem). PPPoE combines the Point-to-Point Protocol, commonly used in dialup connections, with the Ethernet protocol, which supports multiple users in a local area network. The PPP protocol information is encapsulated with an Ethernet frame.



Wan Type: PPPoE
Username: Username
Password: ********
Service Name:
Idle Timeout (60-3600, 0:Disable): 0 seconds
☐ Use non-standard PPPOE ethernet type
Status: Disconnected
IP Address: 0.0.0.0
Network Mask: 0.0.0.0
Gateway IP Address: 0.0.0.0
Primary DNS: 0.0.0.0
Secondary DNS: 0.0.0.0

Note: Changes made will only take effect after rebooting.

Figure 5.1.2.3 PPPoE Configuration Page

Please enter your setting to the parameters like (refer to Figure 5.1.2.3)

- Username
- Password
- Service Name (Optional)
- Idle Timeout

After filling in the data, please click **Save** and then **Reboot** so that the new setting will be updated.

After Rebooting, please re-**logon** again. If you click on the **Connect** button and if all connections are correct, the Message Window at the bottom of the page will display a successful connection message.

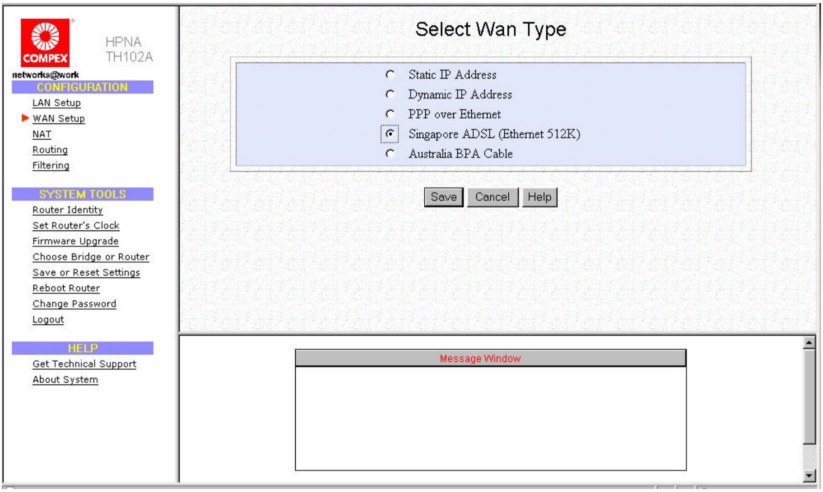
The rest of the parameter field (eg. IP address, Network Mask, etc.) will be dynamically assigned by your ISP.

NOTE

If you do not know what to assign to the above parameters, please check with your Internet service provider for the username, password as well as the service name.
Certain ADSL Internet providers require Service Name to be specified in order to establish a PPPoE connection.

5.1.2.4 Sharing ADSL Internet (RAS)

This is the selection for users who are connected to an Internet Service Provider using a DANA RAS for authentication.

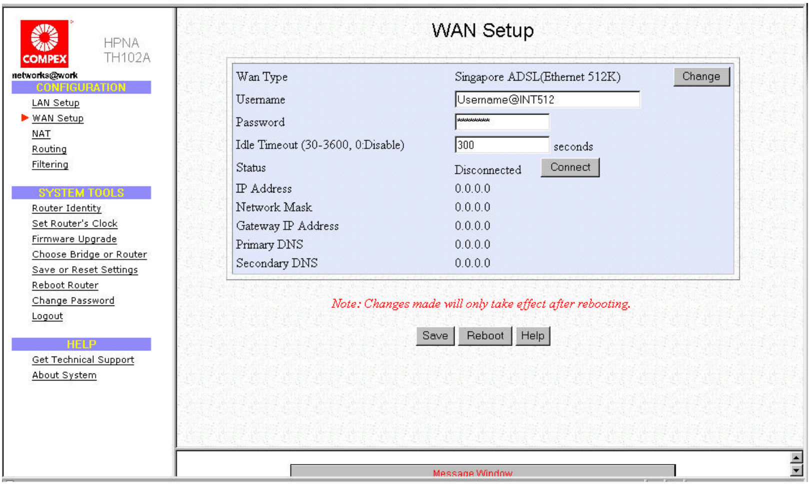


Select Wan Type

○ Static IP Address
○ Dynamic IP Address
○ PPP over Ethernet
● Singapore ADSL (Ethernet 512K)
○ Australia BPA Cable

Figure 5.1.2.4a Selection of Singapore ADSL

Upon making the selection (refer to Figure 5.1.2.4a), you will be greeted by the configuration page as shown on Figure 5.1.2.4b.



WAN Setup

Wan Type	Singapore ADSL(Ethernet 512K)
Username	Username@INT512
Password	********
Idle Timeout (30-3600, 0:Disable)	300 seconds
Status	Disconnected
IP Address	0.0.0.0
Network Mask	0.0.0.0
Gateway IP Address	0.0.0.0
Primary DNS	0.0.0.0
Secondary DNS	0.0.0.0

Note: Changes made will only take effect after rebooting.

Figure 5.1.2.4b Singapore ADSL Configuration Page

Please fill in the data in the appropriate fields and you will be ready to connect to the ISP. The fields are:

- Username
- Password
- Idle Timeout

NOTE

If you do not know what to assign to the above parameters, please check with your Internet Service Provider for the username and password.
You do not need to configure the rest of the parameters, as most of the ISP will dynamically assign them.

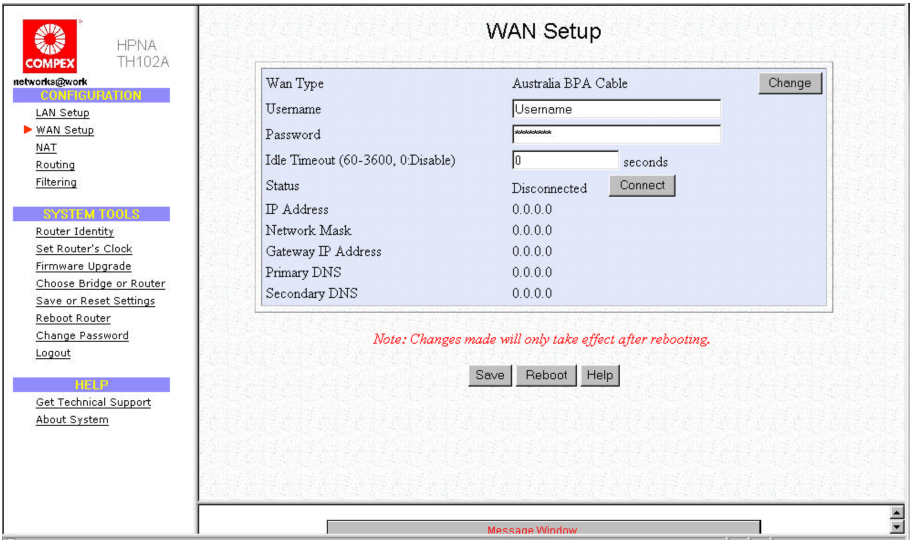
After filling in the data, please click **Save** and then **Reboot** so that the new setting will be updated.

After Rebooting, please re-**logon** again. If you click on the **Connect** button and if all connections are correct, the Message Window at the bottom of the page will display a successful connection message.

The rest of the parameter field (eg. IP address, Network Mask, etc.) will be dynamically assigned by your ISP.

5.1.2.5 Sharing Cable Internet (BPA)

This is similar to the rest of the dynamic IP configuration. The difference is that this is a customized setup screen for the subscribers of OPTUS in Australia.



WAN Setup

Wan Type	Australia BPA Cable
Username	Username
Password	********
Idle Timeout (60-3600, 0:Disable)	0 seconds
Status	Disconnected
IP Address	0.0.0.0
Network Mask	0.0.0.0
Gateway IP Address	0.0.0.0
Primary DNS	0.0.0.0
Secondary DNS	0.0.0.0

Note: Changes made will only take effect after rebooting.

Figure 5.1.2.5 Australia BPA Cable Configuration Page

Upon selection of Australia BPA Cable, you need to enter your parameters for the following fields:

- Username
- Password
- Idle Timeout

NOTE

If you do not know what to assign to the above parameters, please check with your Internet Service Provider for the username and password.
You do not need to configure the rest of the parameter, as most of the ISP will dynamically assign them.

After filling in the data, please click **Save** and then **Reboot** so that the new setting will be updated.

After Rebooting, please re-**logon** again. If you click on the **Connect** button and if all connections are correct, the Message Window at the bottom of the page will display a successful connection message.

The rest of the parameter field (eg. IP address, Network Mask, etc.) will be dynamically assigned by your ISP.

5.1.3 NAT

Network Address Translator (NAT) is used to map IP addresses from one realm to another, in attempt to provide transparent routing to hosts. Address translation allows hosts in a private network to transparently communicate with destinations on an external network to transparently communicate with destination on an external network and vice versa.

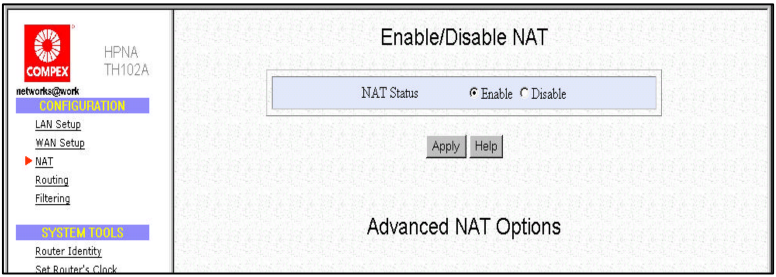
The need for IP Address translation arises when a network's internal IP addresses cannot be used outside the network either because they are invalid for external usage, or the internal addressing must be kept private from the external network.

As such, the mapping done by NAT allows you to have a Virtual server in the LAN. Compex TH102-A supports 2 types of Virtual Servers, namely,

- Static Port based Entries (Port Forwarding Virtual Server)
- Static IP Address Entries (IP Forwarding Virtual Server)

Therefore the implementation of the Virtual Server allows you to configure Internet servers such as Web server, FTP server and Mail server to be hosted in your home phoneline network.

To allow NAT options, please select Enable on the NAT status.



Enable/Disable NAT

NAT Status ● Enable ○ Disable

Advanced NAT Options

Figure 5.1.3 NAT Configuration page

Different WAN type allowed different NAT options. Below is a table, summarizing the NAT options available for different WAN type.

WAN Type	Static Port Based Entries	Static Ip Address Entries
Static IP Address	✓	✓
Dynamic IP Address	✓	
PPP over Ethernet	✓	
Singapore ADSL (Ethernet 512K)	✓	
Australia BPA Cable	✓	

5.1.3.1 Static Port based Entries

Port-Forwarding redirects any incoming Internet request on the Public IP, based on its TCP/UDP Port number to another computer in the Private IP.

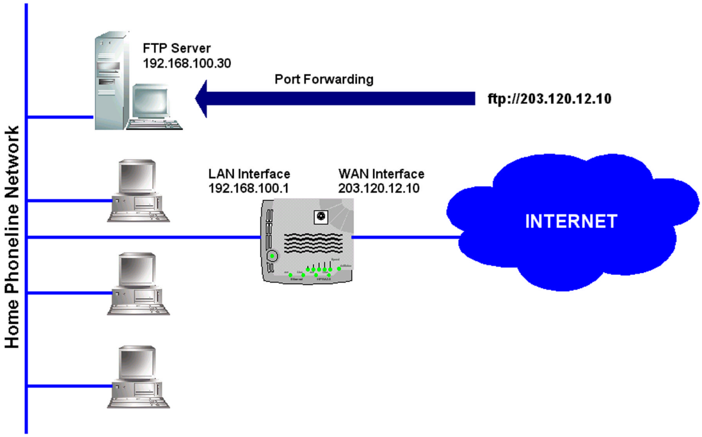
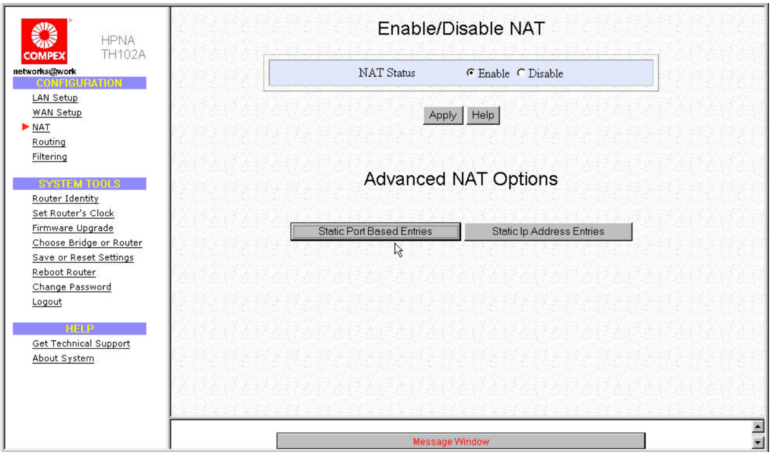


Figure 5.1.3.1a Port Forwarding Virtual Server

Hence, when a user from WAN sends a request to your network, TH102-A (based on the Port-Forwarding configurations) will forward these requests to the assigned PC.

The diagram shows how Port-Forwarding Virtual Server works. It shows the IP address assigned by the ISP as 203.120.12.10. All the incoming Internet requests to TCP Port 21 (FTP) is redirected to the PC with an IP address 192.168.100.30

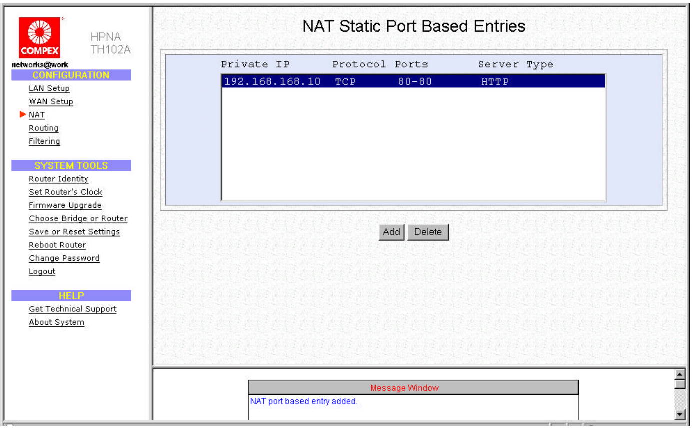
Therefore to configure the Port Forwarding virtual server, please click on the **Static Port Based Entries** as shown in Figure 5.1.3.1b.



NAT Status ● Enable ○ Disable

Figure 5.1.3.1b Choosing Port-Forwarding Virtual Server

When you click on the **Static Port Based Entries**, the **NAT Static Port Based Entries** menu will appear as shown in Figure 5.1.3.1c. You can **Add** or **Delete** an entry from the Port-Forwarding server.



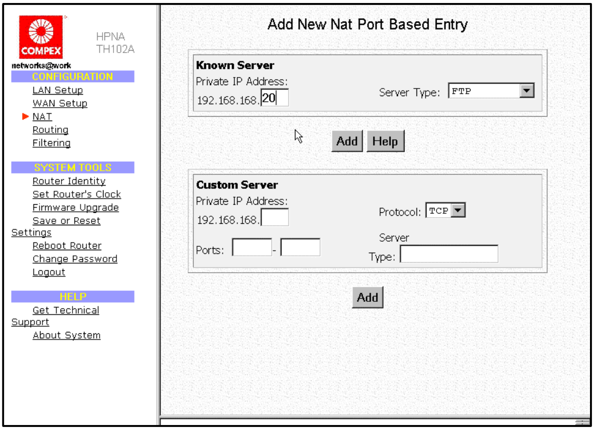
Private IP	Protocol	Ports	Server Type
192.168.168.10	TCP	80-80	HTTP

NAT port based entry added.

Figure 5.1.3.1c NAT Static Port Based Entries

For example, on the screen (Figure 5.1.3.1c), it shows that user has define the http server port 80 to be hosted on the PC with IP address 192.168.168.10 only.

If you require assigning more PCs in your LAN environment as servers, use **Add** to define the port-forwarding virtual server.



Add New Nat Port Based Entry

Known Server

Private IP Address: 192.168.168.20

Server Type: FTP

Custom Server

Private IP Address: 192.168.168.

Protocol: TCP

Ports: -

Server Type:

Figure 5.1.3.1d New Nat Port Based Entry

In the screen, you will see two types of server, **Known Server** and **Custom Server**.

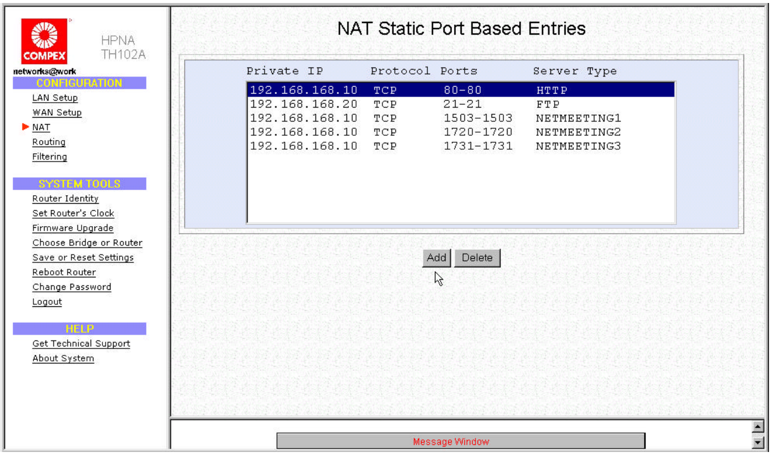
Known Server supports a pre-defined list of common Internet applications. You need not have to know which TCP/UDP port matches a specific Internet application to define in the virtual server.

Custom Server enables user to define the TCP/UDP port number for the Virtual Server (of which is not supported by the **Known Server**)

To configure NAT, you have to enter the **Private IP Address** of the Virtual Server and the **Server Type** (eg HTTP)
For those Internet applications not defined in the **Known Server**, you will have to enter **Port** in the **Custom Server** (the port number for TCP/UDP port used by this Virtual Server). You can also assign a name to this Virtual Server in the **Server Type** field. Choose a **Protocol** for this Virtual Server ports.(eg TCP or UDP)

By clicking **Add** at the **Add New Port Based Entry**, you have added a new Virtual port.

Thus in a nutshell, when your ISP assigns you with only one fixed Public IP address, and you want to define the various servers (such as , FTP, HTTP, NetMeeting etc) to specific Private IP address in your LAN; you can choose to host the servers by using the port-Forwarding Virtual server.



Private IP	Protocol	Ports	Server Type
192.168.168.10	TCP	80-80	HTTP
192.168.168.20	TCP	21-21	FTP
192.168.168.10	TCP	1503-1503	NETMEETING1
192.168.168.10	TCP	1720-1720	NETMEETING2
192.168.168.10	TCP	1731-1731	NETMEETING3

Figure 5.1.3.1e Assigning IP addresses as Port-Forwarding Virtual Server

For example, the screen (Figure 5.1.3.1e) shows that the user has defined a single Private IP address to various Public IP addresses. Global users on WAN only require to know the Public IP, and NAT will forward the data to the respective defined Private IP in your LAN.

5.1.3.2 Defining IP-Forwarding Virtual Server

In IP-Forwarding Virtual Server, all Internet requests from the Public IP (regardless of the TCP/UDP port number) are directed to another PC in the Private IP.

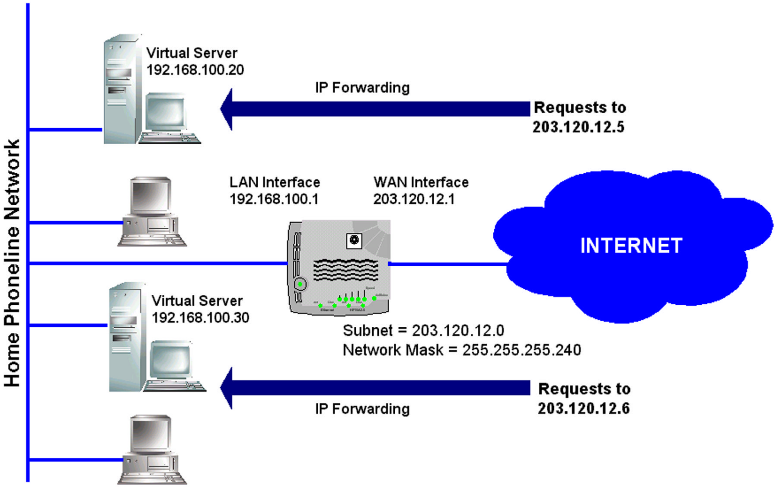
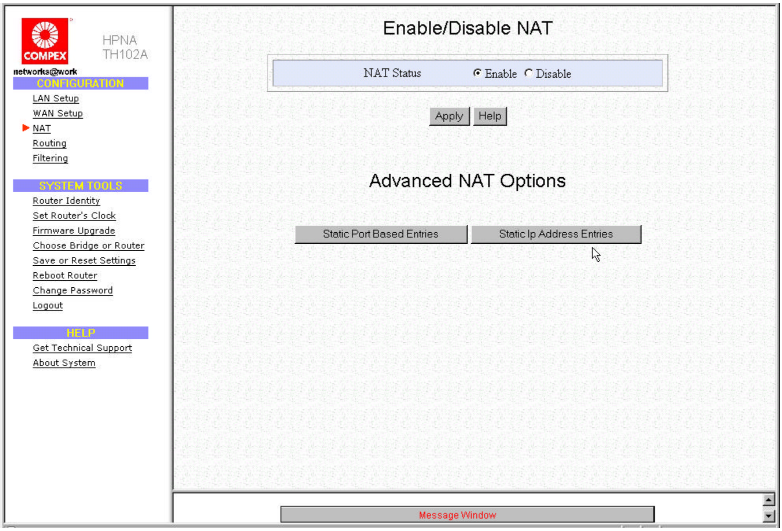


Figure 5.1.3.2a IP-Forwarding Virtual Server

Figure 5.1.3.2a shows an example of IP-Forwarding Virtual Server.

All the Internet requests from 203.120.12.5 are directed to the PC at IP address 192.168.100.20. Whereas any Internet request from 203.120.12.6 are directed to PC with IP address 192.168.100.30.

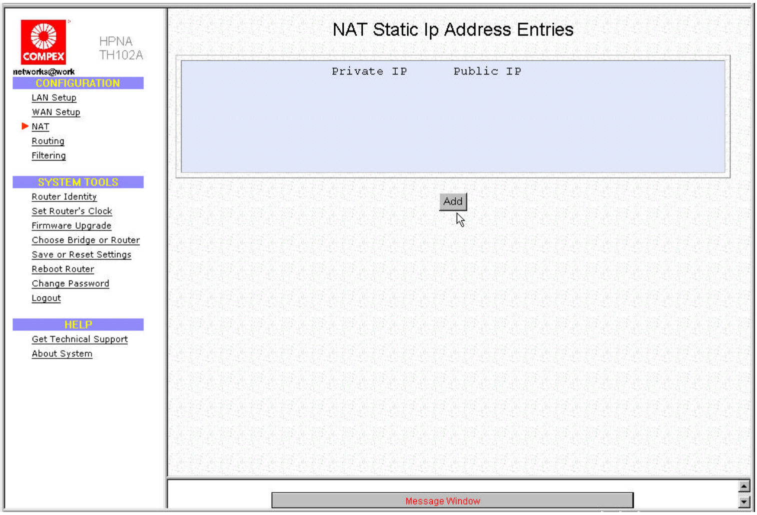
To begin configuring the Static IP address virtual server, please click on the **Static IP Address Entries** in the NAT window as shown in Figure 5.1.3.2b.



NAT Status ● Enable ○ Disable

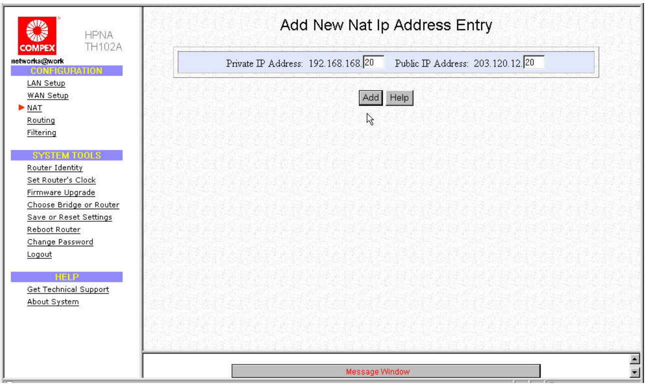
Figure 5.1.3.2b NAT Configuration screen.

Then click **Add** to add IP-Forwarding Virtual Server.



Private IP	Public IP

Figure 5.1.3.2c Adding IP-Forwarding Virtual Server.



Add New Nat Ip Address Entry

Private IP Address: 192.168.168.20 Public IP Address: 203.120.12.20

Figure 5.1.3.2d Setting IP-Forwarding Virtual Server

To add an IP Forwarding Virtual Server, enter the **Private IP Address** and **Public IP Address.**

Click **Add** to map your IP virtual server. In this example as shown in Figure 5.1.3.2d, you will now have a IP virtual server that map the IP address 203.120.12.20 to private IP address of 192.168.168.20. In other words, all Internet requests to 203.120.12.20 will be forwarded to 192.168.168.20 regardless of TCP/UDP port number.

To summarize, IP-Forwarding virtual server is pretty straightforward. You are given a few Public IP from your ISP. Each Public IP, hence can be assigned to IP-forward to the Private IP in your LAN, regardless of the type of Internet request, (be it FTP, HTTP etc).

NOTE
The Static IP Address button is available ONLY if the WAN type selected is Static IP Address.

5.1.4 Routing

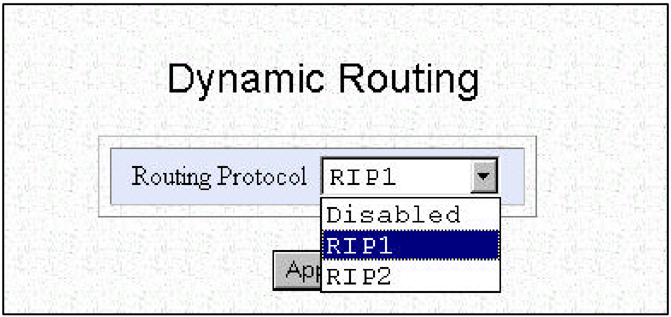
TH102-A is able to handle Dynamic or Static Routing Protocol. The type of routing would determine how the data packets are transferred around the network.

5.1.4.1 Dynamic Routing

For dynamic routing, RIP1 or RIP2 will be selected from the field list as shown in Figure 5.1.4. Selecting this option means that the broadband Internet Router will keep on updating its IP routing table with the latest routing information. It automatically adjusts to any physical changes in the network connection.

The content in the routing table contains the network path and status information, which are used for forwarding the information. They are updated by receiving routing information from other routers in the network. No special configuration is needed when dynamic routing is selected.

If Dynamic Routing is your choice of routing, please select either RIP1 or RIP2 from the pull down list in the Routing Protocol.(refer to Figure 5.1.4)



Dynamic Routing

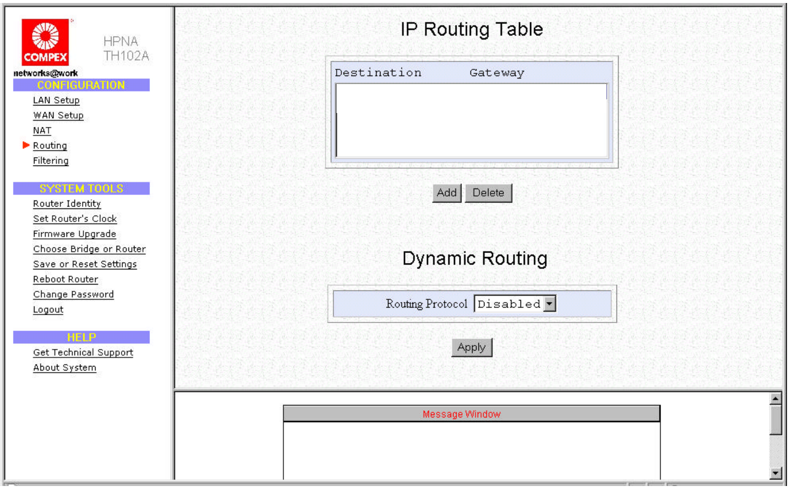
Routing Protocol: RIP1

Figure 5.1.4 Selection of Dynamic Routing

Please click on **Apply** and subsequently **Reboot Router** on the left of the Web based Configuration Interface. This would allow the new setting to be updated into the TH102-A.

5.1.4.2 Static Routing

Static routing is required when there are multiple routers and multiple networks in your LAN environment. Thus, to avoid the hassle of having the routers to dynamically assigning the routing path (which is rather time consuming), a static route can be configured. In this way, you can have a better control over the routes of TH102-A.



Routing Protocol Disabled

5.1.4.2a IP Routing Configuration Page

For configuring the static route, **Disabled** the Dynamic Routing and select **Add** button as shown in Figure 5.1.4.2a. Upon entering the new page, refer to Figure 5.1.4.2b, you are requested to enter the data for the **Destination IP Address** as well as the **Gateway IP address.**

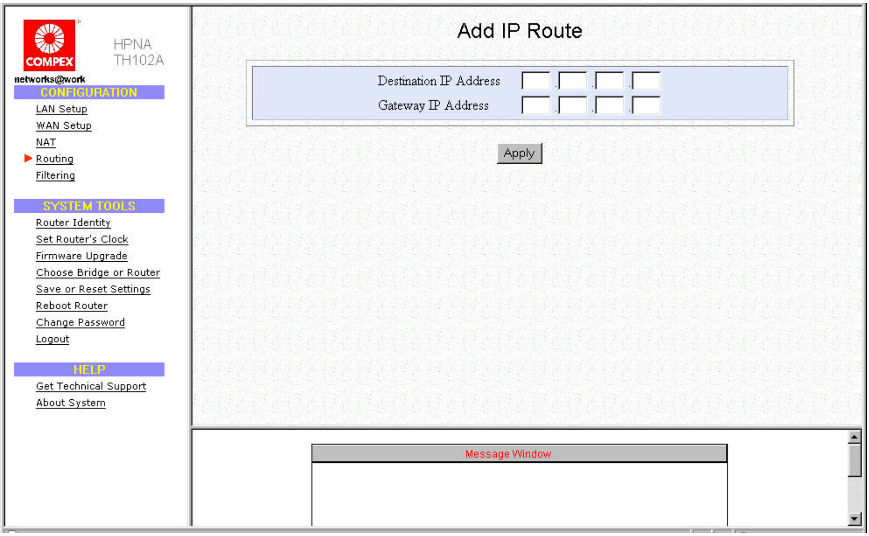


Figure 5.1.4.1b Add IP Configuration Page

NOTE

1. Destination IP Address is the remote network IP address to which you want to assign the static route.
2. Gateway IP Address is H102-A and the remote network.

You can specify as many routes as the network requires. After adding all the routes, please click on **Apply** so that the changes can be updated. Next, **Reboot** TH102-A so that the new settings will be updated.

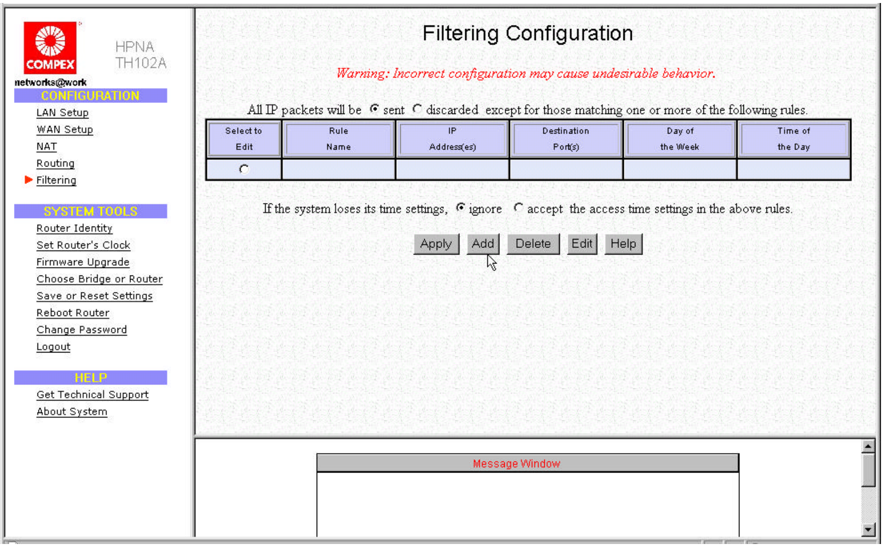
5.1.5 Filtering

Compex TH102-A supports IP packet filtering that allows users-definable access rules to be applied to the PCs connected on their Home Phoneline Network. Filtering rules can be configured based on

- Time
- Source IP Address
- TCP Port

This is an added security measure and it function liked a firewall. It controls the type of package that goes through the TH102-A.

Upon selecting Filtering on the Configuration Menu, your browser will change to the screen as shown in Figure 5.1.5a. Please click on **Add** button to add a new rule to the Filtering list.



Filtering Configuration

Warning: Incorrect configuration may cause undesirable behavior.

All IP packets will be ● sent ○ discarded except for those matching one or more of the following rules.

Select to Edit	Rule Name	IP Address(es)	Destination Port(s)	Day of the Week	Time of the Day
○					

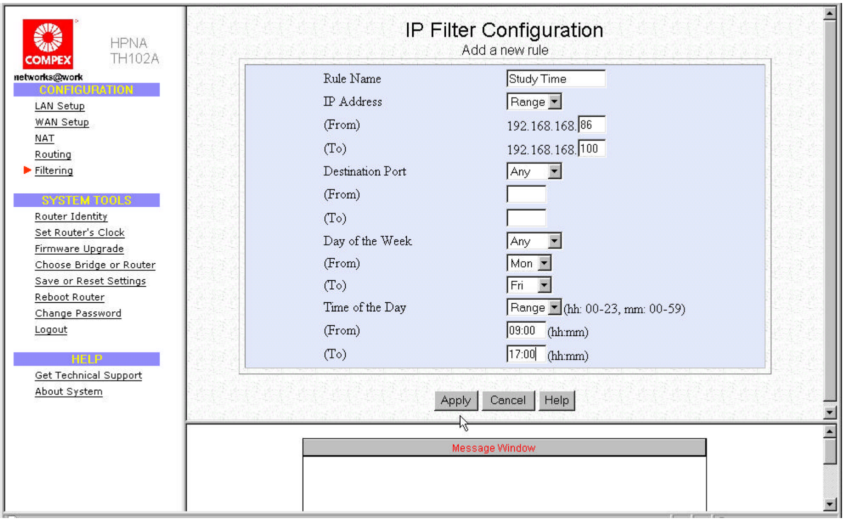
If the system loses its time settings, ● ignore ○ accept the access time settings in the above rules.

Figure 5.1.5a Filtering Configuration Page

On the IP Filter Configuration page, you can modify (refer to Figure 5.1.5b)

- The range of IP address
- Destination Port
- Duration and time of usage

You must synchronize the clock of the TH102-A to your PC's time for the rules to execute accurately.
See section **5.2.2, Set Router s Clock** to perform the synchronization, so as to utilize the time based function of your TH102-A.



IP Filter Configuration

Add a new rule

Rule Name	Study Time
IP Address	Range
(From)	192.168.168.86
(To)	192.168.168.100
Destination Port	Any
(From)	
(To)	
Day of the Week	Any
(From)	Mon
(To)	Fri
Time of the Day	Range (hh: 00-23, mm: 00-59)
(From)	09:00 (hh:mm)
(To)	17:00 (hh:mm)

Figure 5.1.5b IP Filter Configuration Page

After changing the various parameters, please click **Apply** so that the new rule can be displayed on the list. Please select **Reboot Router** so that the new setting will be updated.

5.2 Using System Tools

This is the section where you would be able to make changes to the system setting. The parameters that can be changed are

- Router Identity
- Set Router’s Clock
- Firmware Upgrade
- Choose Bridge or Router
- Save or Reset Setting
- Reboot Router
- Change Password
- Logout

The next few sections will discuss the procedures in changing all these parameters.

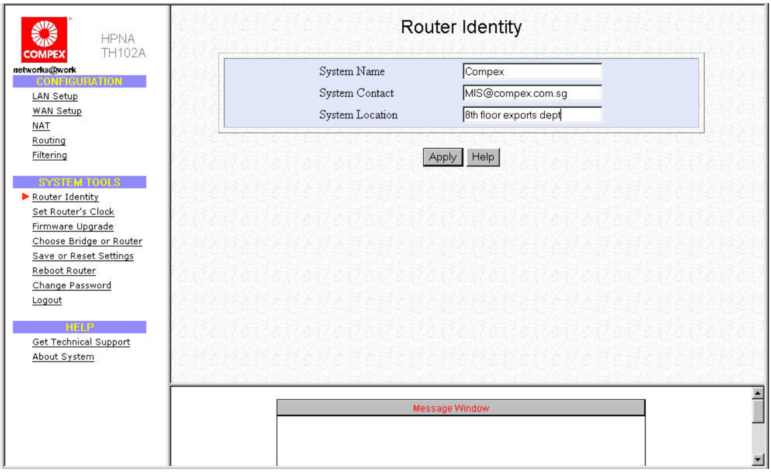
5.2.1 Defining Router Identity

If you are using many routers in your network, it would be a good practice to name all your routers so as to ease the identification process. Therefore to name the router, please select Router Identity on the left of the Web-based Configuration Interface. This would bring up a page as shown in Figure 5.2.1.

Please enter your

1. System Name
2. System Contact
3. System Location

into the corresponding field and click **Apply**. The changes will only be updated when you **select Reboot system**.



Router Identity

System Name	Compex
System Contact	MIS@compex.com.sg
System Location	8th floor exports dept

Figure 5.2.1 Router Identity

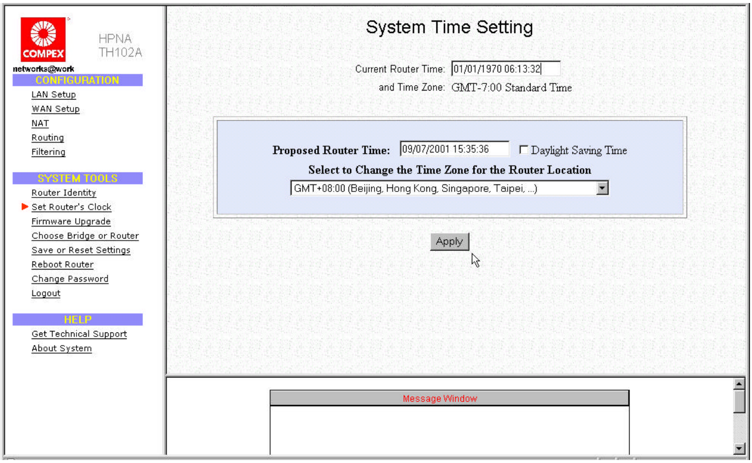
NOTE

For some of the Internet Service Provider, they might require you to enter the identity of the router that you are using before they provide the Internet services.

5.2.2 Set Router s Clock

This web page allows you to set the Router’s time to match with the system’s time. This is important so that the time-based functions (such as Internet access control time found in the Filtering option) configured in TH102-A will be able to synchronize with your own system.

Upon entering the web page as shown in Figure 5.2.2, please select the time zone for the router location and the Proposed Router Time would immediately be synchronized with the system clock.



System Time Setting

Current Router Time: 01/01/1970 06:13:32

and Time Zone: GMT-7:00 Standard Time

Proposed Router Time: 09/07/2001 15:35:36 ☐ Daylight Saving Time

Select to Change the Time Zone for the Router Location

GMT+08:00 (Beijing, Hong Kong, Singapore, Taipei, ...)

Figure 5.2.2 System Time Setting

NOTE

After updating the Router Time, please select Router Reboot on the left side of the Web-based Configuration Interface so that the changes can be updated.

5.2.3 Firmware Upgrade

Compex constantly improve their product firmware. Please go to www.compex.com.sg to download the latest firmware upgrade.

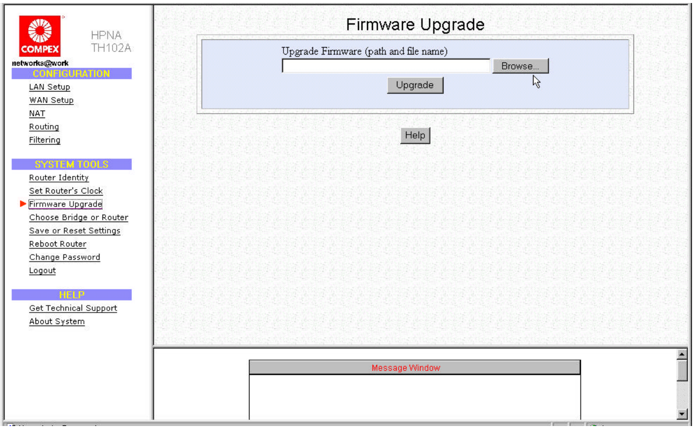


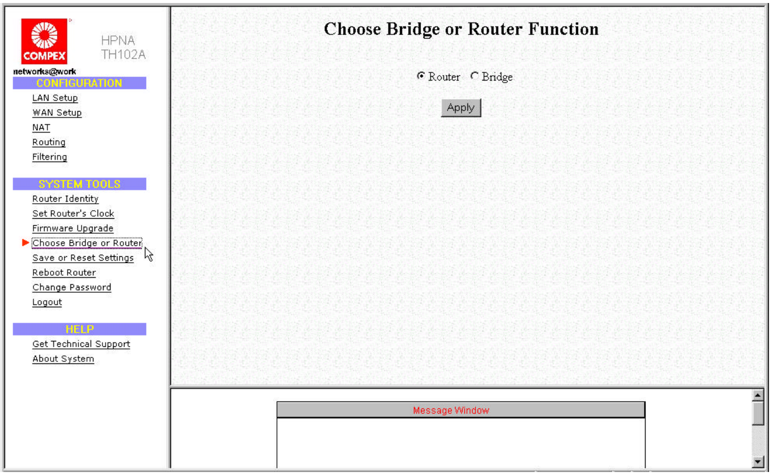
Figure 5.2.3 Firmware Upgrade

Thus, to begin loading the firmware, please select Firmware Upgrade on the left side of the Web-based Configuration Interface. The screen will change to the one that is similar to Figure 5.2.3. Select the browse button and look for the image file (.img) for loading. Upon selection, select Upgrade and your firmware will be loaded into the router.

NOTE After loading the firmware, please select Router Reboot on the left side of the Web-based Configuration Interface so that the changes can be updated.

5.2.4 Choose Bridge or Router

This is the page that allows you to choose between the Bridge Mode or Router Mode. Upon selection of the mode of TH102-A, please select **Apply** and then **Reboot Router**.



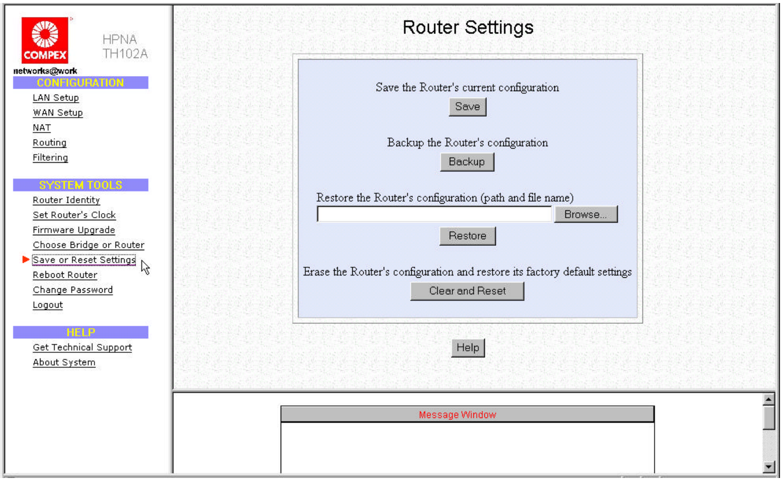
Choose Bridge or Router Function

● Router ○ Bridge

Figure 5.2.4 Choose Bridge or Router Function

5.2.5 Save or Reset Settings

As shown in Figure 5.2.5, this web page allows you to save the current Router's configuration. However, by saving the current configuration will not update TH102-A. The only way to update the setting is to select Reboot router. Alternatively, you can store the configuration in a storage media (eg. hard disk, floppy disk) by selecting the Backup button. For restoring an old configuration that you have saved, please select the Browse button to get to the location of the saved file and then hit Restore to recover the old configuration. If you need to erase the existing configuration and restore it to factory setting, please select the Clear and Reset button.



Router Settings

Save the Router's current configuration

Backup the Router's configuration

Restore the Router's configuration (path and file name)

Erase the Router's configuration and restore its factory default settings

Figure 5.2.5 Router Setting

5.2.6 Reboot Router

This is an essential step to after the router's settings have been made. Upon selecting Reboot Router, this would update the router with the new settings.

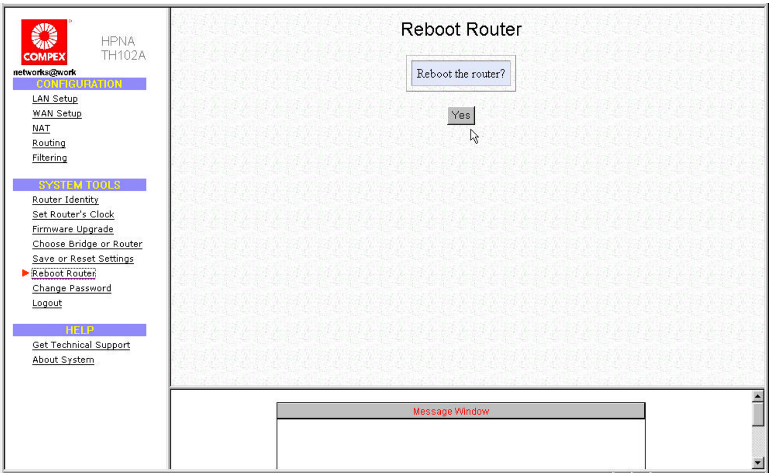
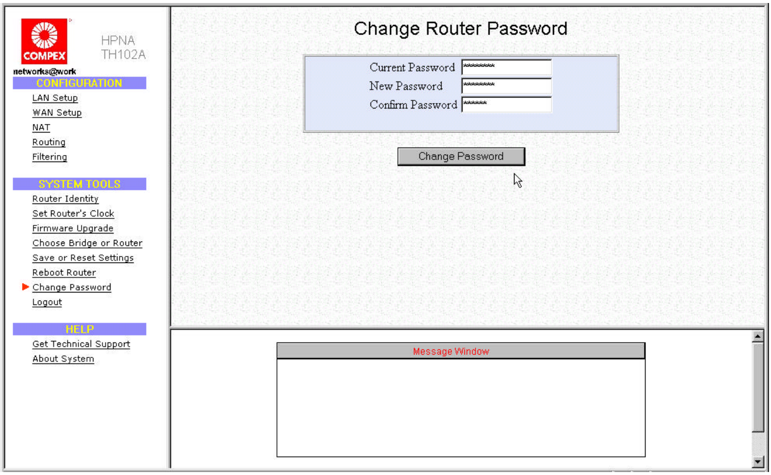


Figure 5.2.6 Reboot Router

5.2.7 Change Password

This is the web page that allows you to change your device password. The default password is set to **password**.



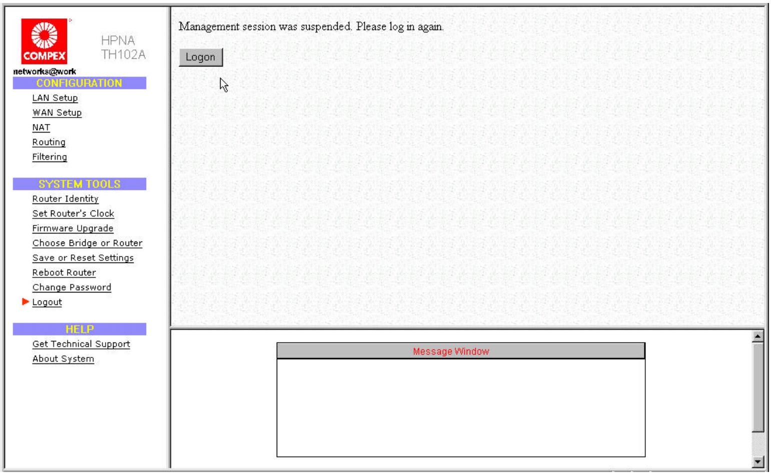
Current Password ********
New Password ********
Confirm Password ******

Figure 5.2.7 Change Router Password

NOTE The password is case sensitive.

5.2.8 Logout

After making the necessary changes to the setting and having done a soft reboot by clicking on **Reboot Router**, you can get out of this configuration screen by clicking on **Logout**. You can re-login back to the Web based Configuration Interface by clicking on **Logon**



Management session was suspended. Please log in again.

Figure 5.2.8 Logout Page

Alternatively, you can re-login to the Web based Configuration Interface by entering http://192.168.168.1 on the Java-enabled Web Browser.

NOTE Before you logout of the device, please do a Reboot Router so that all the changes made will be updated.

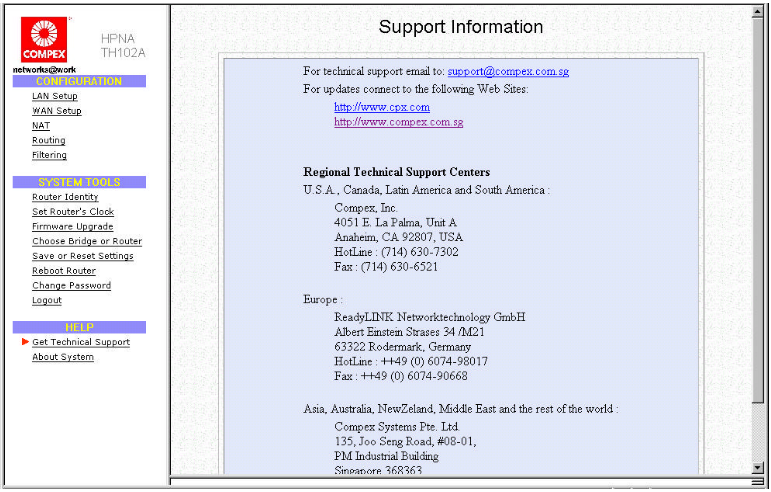
5.3 Help Menu

The subheadings that are listed under this category are:

- Get Technical Support
- About System

5.3.1 Get Technical Support

This is the page where you can find the contact number of Compex's staff who can assist you in technical issues with regards to our products.



Support Information

For technical support email to: support@compex.com.sg

For updates connect to the following Web Sites:

http://www.cpx.com
http://www.compex.com.sg

Regional Technical Support Centers

U.S.A., Canada, Latin America and South America :

Compex, Inc.
4051 E. La Palma, Unit A
Anaheim, CA 92807, USA
HotLine : (714) 630-7302
Fax : (714) 630-6521

Europe :

ReadyLINK Networktechnology GmbH
Albert Einstein Strases 34 /M21
63322 Rodermark, Germany
HotLine : ++49 (0) 6074-98017
Fax : ++49 (0) 6074-90668

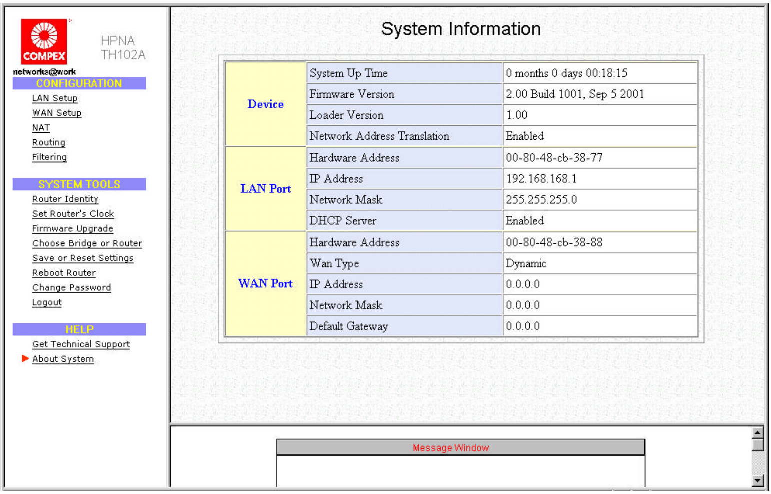
Asia, Australia, NewZeland, Middle East and the rest of the world :

Compex Systems Pte. Ltd.
135, Joo Seng Road, #08-01,
PM Industrial Building
Singapore 368363

Figure 5.3.1 Support Information

5.3.2 About System

This is the page where it shows the current device setting.



System Information

Device	System Up Time	0 months 0 days 00:18:15
	Firmware Version	2.00 Build 1001, Sep 5 2001
	Loader Version	1.00
	Network Address Translation	Enabled
LAN Port	Hardware Address	00-80-48-cb-38-77
	IP Address	192.168.168.1
	Network Mask	255.255.255.0
	DHCP Server	Enabled
WAN Port	Hardware Address	00-80-48-cb-38-88
	Wan Type	Dynamic
	IP Address	0.0.0.0
	Network Mask	0.0.0.0
	Default Gateway	0.0.0.0

Figure 5.3.2 System Information

Chapter 6 TCP/IP Configuration

This chapter would discuss the setting of the TCP/IP configuration of your computer. By setting the right IP address and gateway, then it would be possible to get onto the Web-based Configuration Interface of TH102-A.

6.1 Settings for Windows 95/98/ME and 2000 users

For users who are using Windows 95/98/ME and 2000, please select Settings on your Start Menu and followed by the Control Panel.

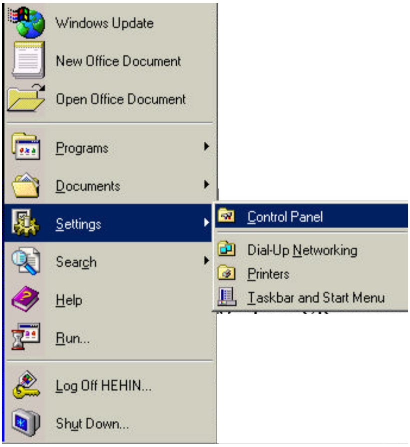
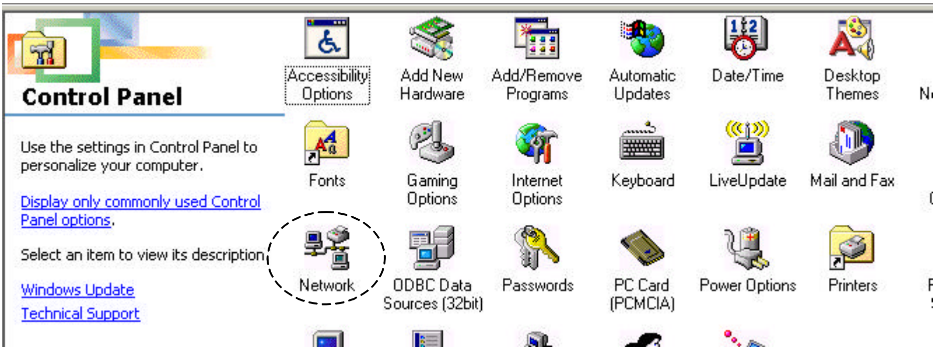


Figure 6.1a Selection of the Control Panel Folder

In the Control Panel folder, please select the Network icon.



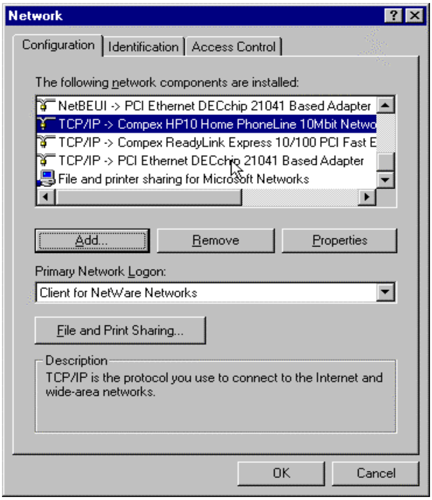
Use the settings in Control Panel to personalize your computer.

Display only commonly used Control Panel options.

Select an item to view its description.

Figure 6.1b Selecting the Network icon for Configuration

Upon entering the network configuration page, select the TCP/IP that you used to connect to TH102-A. Select the Properties button and you will be able to configure the TCP/IP settings as shown in Figure 6.1c)



The following network components are installed:

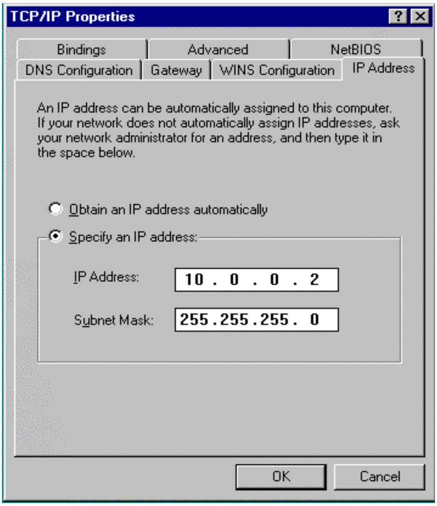
- NetBEUI -> PCI Ethernet DECchip 21041 Based Adapter
- TCP/IP -> Compex HP10 Home PhoneLine 10Mbit Netwo
- TCP/IP -> Compex ReadyLink Express 10/100 PCI Fast E
- TCP/IP -> PCI Ethernet DECchip 21041 Based Adapter
- File and printer sharing for Microsoft Networks

Primary Network Logon: Client for NetWare Networks

Description
TCP/IP is the protocol you use to connect to the Internet and wide-area networks.

Figure 6.1c Selecting the TCP/IP interface

Please enter the IP address of your managing PC as 10.0.0.X (where X can be any number from 2 to 253) and a subnet mask of 255.255.255.0, if you are configuring TH102-A from its RJ11 Home Phoneline (HPNA) interface.



An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.

○ Obtain an IP address automatically

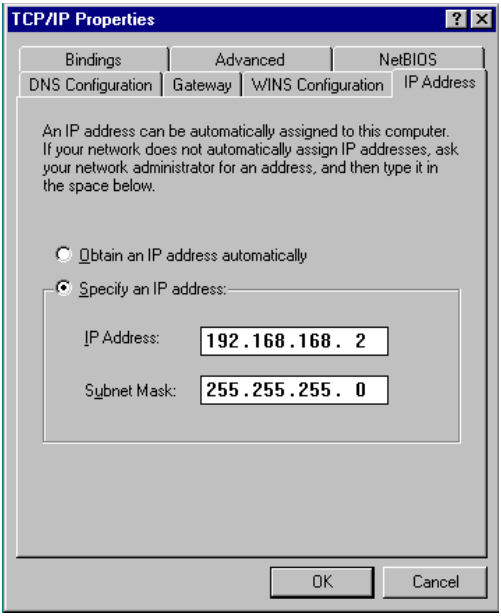
● Specify an IP address:

IP Address: 10 . 0 . 0 . 2

Subnet Mask: 255 . 255 . 255 . 0

Figure 6.1d Configuration for HPNA Interface

If you are configuring the TH102-A from its RJ45 10Base-T Ethernet interface, please ensure that the IP address of your managing PC is configured with an IP address of 192.168.168.X (where X can be any number from 2 to 253) and a subnet mask of 255.255.255.0.



An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.

○ Obtain an IP address automatically

● Specify an IP address:

IP Address: 192.168.168. 2

Subnet Mask: 255.255.255. 0

Figure 6.1e Configuration for Ethernet Interface

After your PC reboot, perform a **PING** command at the **DOS prompt** of your PC.

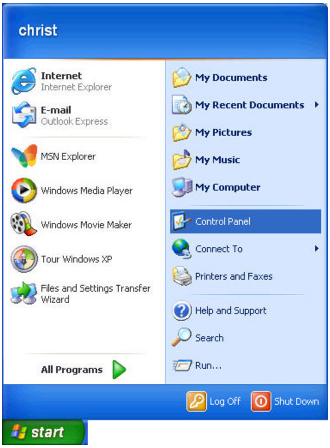
To verify if your PC has been assigned to the default TH102-A's IP address, at the DOS prompt, please type

PING 192.168.168.1

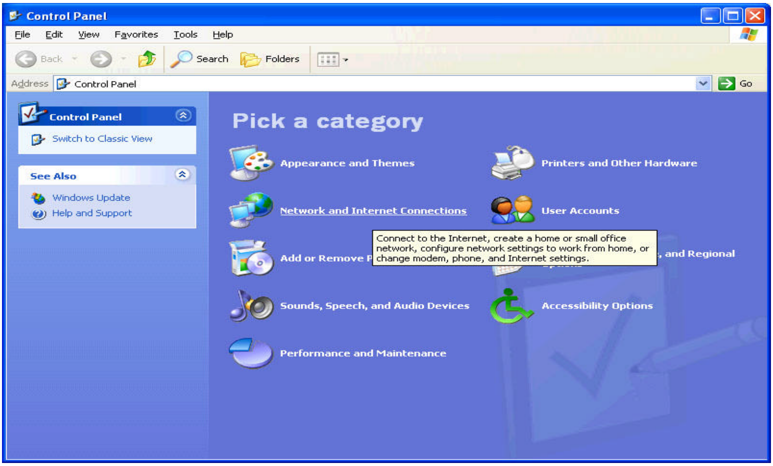
If the PC has been assigned the same subnet IP address as the TH102-A, executing the above **PING** command would get a reply response.

6.2 Setting for Windows XP users

For Windows XP users, please select **Control Panel** on your **Start Menu**. Upon entering the **Control Panel** Folder, please select **Network Connections**. Right click on the interface that is used to connect to TH102-A and select **Properties**. (refer to Figure 6.2 a-d)

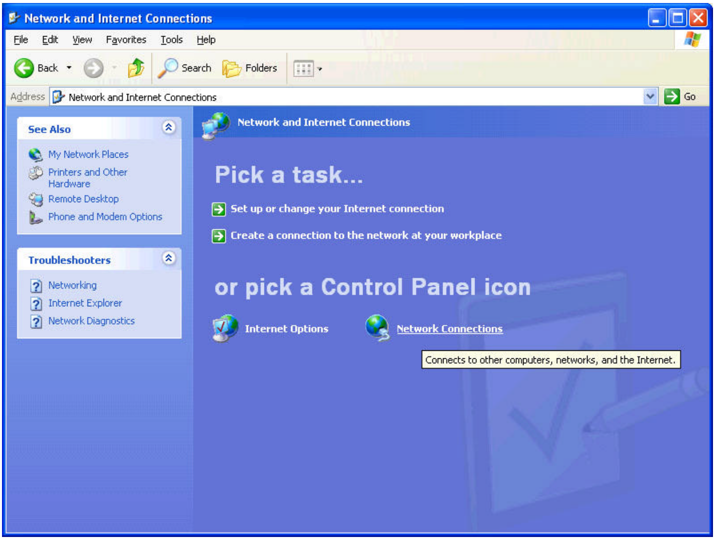


(a)

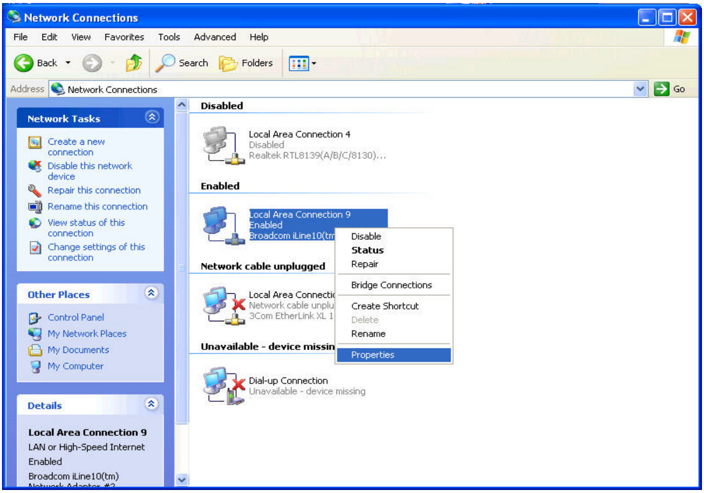


Connect to the Internet, create a home or small office network, configure network settings to work from home, or change modem, phone, and Internet settings.

(b)

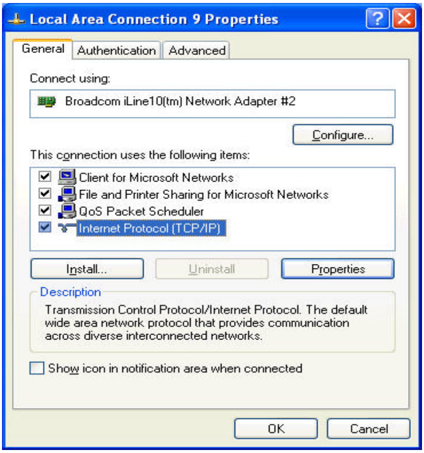

Network and Internet Connections
File Edit View Favorites Tools Help
Back Search Folders
Address Network and Internet Connections Go
See Also
My Network Places
Printers and Other Hardware
Remote Desktop
Phone and Modem Options
Troubleshooters
Networking
Internet Explorer
Network Diagnostics
Network and Internet Connections
Pick a task...
Set up or change your Internet connection
Create a connection to the network at your workplace
or pick a Control Panel icon
Internet Options
Network Connections
Connects to other computers, networks, and the Internet.

(c)



(d)

Figure 6.2 a-d Sequence diagrams for configuring TCP/IP



Connect using:

Broadcom iLine10(tm) Network Adapter #2

This connection uses the following items:

- ☑ Client for Microsoft Networks
- ☑ File and Printer Sharing for Microsoft Networks
- ☑ QoS Packet Scheduler
- ☑ Internet Protocol (TCP/IP)

Description

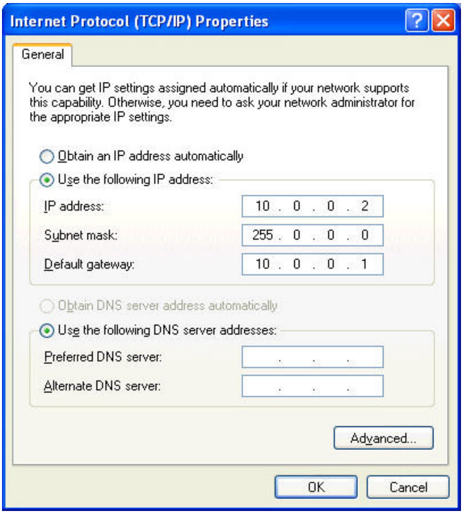
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

☐ Show icon in notification area when connected

Figure 6.2e TCP/IP selection

Select **TCP/IP** and click onto **Properties**.

Please enter the IP address of you managing PC as 10.0.0.X (where X can be any number from 2 to 253) and a subnet mask of 255.255.255.0, if you are configuring TH102-A from its RJ11 Home Phoneline (HPNA) interface.



You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 10 . 0 . 0 . 2

Subnet mask: 255 . 0 . 0 . 0

Default gateway: 10 . 0 . 0 . 1

○ Obtain DNS server address automatically

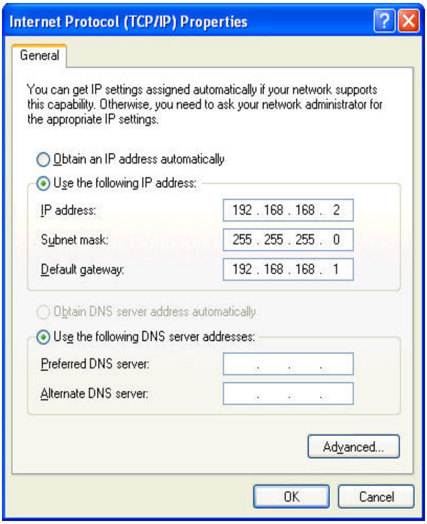
● Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

Figure 6.2f Configuration for HPNA interface

If you are configuring the TH102-A from its RJ45 10Base-T Ethernet interface, please ensure that the IP address of your managing PC is configured with an IP address of 192.168.168.X (where X can be any number from 2 to 253) and a subnet mask of 255.255.255.0.



You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically
● Use the following IP address:
IP address: 192 . 168 . 168 . 2
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 168 . 1

○ Obtain DNS server address automatically
● Use the following DNS server addresses:
Preferred DNS server: . . .
Alternate DNS server: . . .

Figure 6.2g Configuration for Ethernet Interface

Please perform a **PING** command at the **command prompt** of your PC.

To verify if your PC has been assigned to the default TH102-A's IP address, at the DOS prompt, please type

PING 192.168.168.1

If the PC has been assigned the same subnet IP address as the TH102-A, executing the above **PING** command would get a reply response.

Chapter 7 Hardware Reset

Compex NetPassage TH102-A comes with two jumpers to perform resetting of parameters and recovery of password and firmware. To access to the jumpers, perform the following steps:

1. Power off the TH102-A.

2. Remove the four rubber pads located at the bottom of TH102-A.

3. Unscrew the four screws covered by the rubber pads.

Carefully separate the top and bottom casing covers. You will then see the printed circuit board (PCB) of TH102-A, as shown in Figure 7.0.

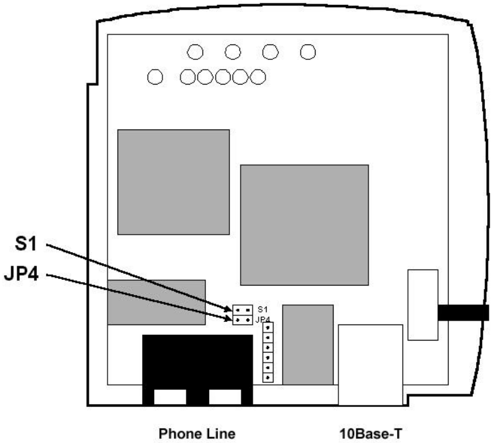


Figure 7.0 Locations of TH102-A s Jumpers

S1	JP4	Function
Close	Close	Normal
Close	Open	Resetting login password to default
Open	Close	Resetting TH102-A to factory defaults
Open	Open	Firmware recovery mode

7.1 Resetting Login Password to Default

Follow the steps below to reset the password to default value:

1. Remove the jumper **JP4**.
2. Power on the TH102-A.
3. Wait for 10 seconds.
4. Power off the TH102-A.
5. Reinsert the jumper **JP4**.

You have now reset the login password of TH102-A to the default value. The login password is now “password”.

7.2 Resetting TH102-A to Factory Defaults

Follow the steps below to reset the TH102-A to its factory defaults:

1. Remove the jumper **S1**.
2. Power on the TH102-A.
3. Wait for 10 seconds.
4. Power off the TH102-A.
5. Reinsert the jumper **S1**.

CAUTION
Performing the following operations will clear all the configurations you have made.

You have now reset the configurations of TH102-A back to factory defaults. The operating mode of the TH102-A is now Bridge Mode.

7.3 Firmware Recovery

If the firmware of TH102-A is corrupted, you may perform the following steps to restore the firmware of TH102-A. The firmware corruption is typically caused by the cutoff of power supply during the firmware upgrade process performed via the web-based configuration interface.

1. Remove the jumpers **S1** and **JP4**.
2. Power on the TH102-A. Once power on, you will note that one of the “Speed” LEDs (#7 as labeled in Figure 1) is flashing rapidly. This indicates that the TH102-A is now ready for firmware recovery.
3. Connect your PC to the TH102-A, either by RJ11 Home Phoneline interface or RJ45 10Base-T Ethernet interface. Ensure that this PC is configured with an IP address in the same subnet as the network interface.

4. Run the utility **TFTP.EXE** from the DOS prompt with the following syntax. **TFTP.EXE** can be found in the product CD.

   ```
   tftp   i <IP address> put <firmware image file>
   ```

   where <IP address> is the IP address of TH102-A, and <firmware image file> is the binary image of TH102-A firmware which can be found in the product CD.

   Once the above command is executed, you will note the LED (#7 as labeled in Figure 1) stops flashing and lights up steadily. This indicates that the firmware is currently being written onto the flash ROM of TH102-A.

   Once the TH102-A finishes writing the firmware onto its flash ROM, the LED (#7 as labeled in Figure 1) starts to blink slowly. This indicates that the firmware upgrade process has been completed.

5. Power off the TH102-A.

6. Reinsert the jumpers **S1** and **JP4**.

You have now completed the firmware recovery process.

Chapter 8 Troubleshooting

- **Based on which TH102-A firmware release is this Quick Install Guide written?**
  This Quick Install Guide is written based on TH102-A firmware release 2.69 Build 1203, Jan 15, 2002.

- **I have connected the RJ45 10Base-T Ethernet port of TH102-A to a Hub/Switch, but the Ethernet Link LED does not light up.**
  Ensure that the Uplink Switch is pushed to the position labeled “HUB”.

- **I have connected the RJ11 Home Phoneline port of TH102-A to a Home Phoneline NIC compliant with HPNA 1.0, but the HPNA 2.0 Link LED does not light up.**
  The HPNA 2.0 Link LED will not light not if it is connected to a Home Phoneline NIC compliant with HPNA 1.0. The Link LED will only light up when there are transmissions. You may test it by PINGING the IP address of the Home Phoneline interface. The default IP address of the RJ11 Home Phoneline network interface is 10.0.0.1.

- **I have connected the RJ11 Home Phoneline port of TH102-A to my PC. The Link LED lights up. However, I am not getting any response when I PING the default IP of 10.0.0.1. The operating mode of the TH102-A is Bridge Mode.**
  Ensure that your PC is configured with an IP address in the same subnet as the IP address of the TH102-A. If the IP address of TH102-A has not been changed, you should configure your PC with an IP address of 10.0.0.X where X could be any integer from 2 to 254.

- **I have connected the RJ11 Home Phoneline port of TH102-A to my PC. The Link LED lights up, but the TH102-A does not assign any IP to my PC. My TH102-A is operating in Bridge Mode**
  The DHCP Server of TH102-A is only present when NetPassage TH102-A is configured with Router Mode. You need to manually configure your PC with an IP address.

- **My TH102-A is not functioning. One of the Speed LED keep flashing rapidly.**
  The firmware of your TH102-A is corrupted. Follow the sub-section titled **Firmware Recovery** under section **Jumper Settings of TH102-A** in chapter **Getting Started**

- **I need to bridge my Home Phoneline Network to an Ethernet network, but I am not sure whether my TH102-A is already operating in Bridge Mode.**
  If the “Bridge Mode” LED of your TH102-A lights up, it indicates that the TH102-A is operating in Bridge Mode.

- **I have connected my Ethernet PC to the RJ45 10Base-T Ethernet port of TH102-A. The Ethernet Link LED lights up but I am not able to connect to the web-based configuration interface using IP 10.0.0.1. I have not made any changes to the IP address.**
  The RJ45 10Base-T Ethernet interface of TH102-A carries a default IP address of 192.168.168.1. The IP 10.0.0.1 that you used is the IP address of TH102-A's RJ11 Home Phoneline interface.

- **I have forgotten the IP address that I have configured on TH102-A. How do I retrieve this information?**
  You may use the utility **NPFIND.EXE** located in the product CD. This utility runs under Windows environment.

- **I have forgotten about the password I have assigned to TH102-A. How can I reset the password to default?**
  Follow the steps in sub-section titled **Resetting Login Password to Default** under section **Jumper Settings of TH102-A** in chapter **Getting Started**

Chapter 9 Appendix

9.1 Telnet Interface Configuration

1. Connect Compex TH102-A phoneline port to your Home Network Phone Adapter (HPNA) on your computer.

2. Start the **MS-DOS** program on your computer and type “**Telnet 10.0.0.1**”. The IP address “10.0.0.1” is the default LAN IP address. If your network is using other IP address other than default IP address, please type the IP address that you have set.

3. You will see a prompt asking you for password. You have to type in the password and default password is **password**. Password is case sensitive and it is the same as the one you have used on the Web browser interface.

4. Now you should see the command prompt “Command>”

Telnet Interface Command is the same as Command Line Interface. We suggest using the help command at the command prompt to guide you through all those commands.

NOTE Configuration using the Telnet program is through the RJ11 Phoneline port. Configuration using the Telnet program cannot be done using the 10 Base-T port.

9.2 Command Line Interface Commands List

The list below is the commands that can be used for configuring TH102-A using the Telnet program. This option is available to those who are more familiar with this form of configuration.

Test Command

```
Ping  <d.d.d.d>
```

IP

```
show ip
show ip stat
show ip routing table

set ip private <d.d.d.d> <d.d.d.d>
set ip lan <d.d.d.d> <d.d.d.d>

add ip routing <d.d.d.d> <d.d.d.d>
delete ip routing <d.d.d.d> <d.d.d.d>
```

```
show arp table
show icmp stat
show udp stat
how tcp stat
show ethernet address
show gateway
set gateway  <d.d.d.d>
```

System Commands

```
set password
set internet access time <????>

disconnect telnet session

set console baud <number>
set prompt <string>
set system name <string>
set system contact <string>
set system location <string>

show system
show internet access time
show telnet session

save config
reset system
logout

show time
set time HH:MM:SS <?????>
set date MM/DD/YY
set timezone <number>
```

DHCP (* Internet LAN, ** external LAN)

```
show dhcp
set dhcp server
*  enable dhcp server
*  disable dhcp server
** enable dhcp client
** disable dhcp client

show telnet session

save config
reset system
logout
```

```
show time
set time HH:MM:SS <?????>
set date MM/DD/YY
set timezone <number>
```

Please remember to save your configuration by typing "**save config**" before you logout.

NOTES